For immediate release...

HUNDREDS OF PHYSICISTS AND OTHER SCHOLARS DEMAND REINSTATEMENT OF JOURNALIST FIRED FOR WRITING BOOK

More than 750 scientists and other scholars in a wide range of fields have condemned the American Institute of Physics for firing *Physics Today* magazine staff editor Jeff Schmidt over his book, *Disciplined Minds* (Rowman & Littlefield Publishers). Among the protesters signing letters delivered on 14 January 2002 are two Nobel Prize winning scientists and more than 500 physicists — the largest number of physicists ever to speak out on a freedom-of-expression issue in the United States.

The protesters have written a flurry of letters demanding that the magazine reinstate Schmidt, who was fired after 19 years on the job a few days after officials at *Physics Today* and the American Institute of Physics, which publishes the magazine, saw his book. *Disciplined Minds* is about the politics of professional work, and uses the education and employment of physicists to illustrate its points. The origin of job dissatisfaction, argues Schmidt, is employers' insistence on exclusive control over the political aspects of the work, and the subordination of the vision of those who actually do it.

The details of the case are explained in an appeal to scientists by three professors of physics. (A copy is appended below.) The appeal resulted in a protest letter signed by more than 540 individuals, mainly physicists. About 100 individuals, mainly physicists and former *Physics Today* staff members, drafted other letters blasting the magazine for its repressive behavior and likewise demanding Schmidt's reinstatement. Massachusetts Institute of Technology linguist and social critic Noam Chomsky helped to solicit signatures on another protest letter, which has been signed by about 150 scholars and others at institutions across the country, in a wide variety of fields outside of the sciences.

Ironically, the American Institute of Physics is governed by the American Physical Society and other physics organizations that often speak out publicly when dissident physicists outside the United States are punished for expressing their views.

The protesters include scientists from 34 countries: Argentina, Australia, Austria, Bahrain, Belgium, Brazil, Bulgaria, Canada, Denmark, England, Finland, France, Germany, Greece, India, Israel, Italy, Japan, Mexico, The Netherlands, New Zealand, Peru, Poland, Portugal, Puerto Rico, Russia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United States, Yugoslavia — and, in a turn of the table on free-expression, Cuba.

CONTACT...

Talat Rahman, 785-532-1611, *rahman@phys.ksu.edu*
George F. Reiter, 713-743-3527, *george@meitner.phys.uh.edu*
Michael A. Lee, 330-672-2577, *mlee1@kent.edu*
Denis G. Rancourt, 613-562-5800 x6774, *dgr@physics.uottawa.ca*
Jeff Schmidt, 202-537-3645, *jeffschmidt@alumni.uci.edu*

Journalists may request the telephone numbers and e-mail addresses of any of the 750 protesters; ask any of the above contacts or send an e-mail message to *SpeechRights@aol.com*.

THE APPEAL...

Dear fellow scientist,

As you may have heard, *Physics Today* magazine recently gave a very punishing review to a book written by physicist Jeff Schmidt: The magazine fired him.

Jeff was a staff editor at *Physics Today* for 19 years — until his supervisors saw *Disciplined Minds*, a thought-provoking critique of workplace hierarchy and the politically subordinate role of salaried professionals. The book uses physicists and physics graduate school to help illustrate points about professionals and professional training in general.

Within days of learning about his irreverent book, the higher-ups at *Physics Today* dismissed Jeff summarily, apparently using the book as an opportunity to retaliate against him for his workplace activism and to ignore his widely praised work for the magazine. Details of Jeff's firing are given in the statement below by two former *Physics Today* staff members.

Please join us in protesting Jeff's dismissal, by adding your name to the letter below, which we will send to Marc H. Brodsky, Executive Director and CEO of the American Institute of Physics. To add your name to the letter, please send an e-mail message to *SpeechRights@aol.com*. Include your name and an affiliation, such as your department and institution. Please ask others to add their names, too. You can also write directly to Marc Brodsky, at *brodsky@aip.org*.

Your support will make a big difference.

Sincerely,

Talat Rahman
Fellow of the American Physical Society
University Distinguished Professor
Department of Physics
Kansas State University

George F. Reiter
Professor of Physics
University of Houston

Michael A. Lee
Professor of Physics
Kent State University

BACKGROUND INFO ABOUT JEFF SCHMIDT AND *DISCIPLINED MINDS*

By Chris Mohr and Marlowe Hood, former *Physics Today* staff members

In *Disciplined Minds*, Jeff Schmidt challenges professionals to view their role in society in a new and unsettling way. He argues that professional work has both technical and political components, and that salaried professionals are expected to be technically creative but politically subordinate. Such subordination does not occur without a fight, the book maintains, and so the workplace becomes a battleground for the very identity of the individual, as does graduate school, where professionals are trained.

Jeff has a PhD in physics from the University of California, Irvine, and he draws many of his examples from the predicament of employed physicists and physics graduate students. (In one chapter, he examines the physics PhD qualifying examination and shows how the ostensibly value-neutral test can identify candidates who will likely have a compliant attitude toward their employers.) His book details the battle one must fight to be an independent thinker and to advance one's own social vision in today's corporate society. It offers practical advice on how to make employment more than an exercise in knowing your place, and how to make graduate school more than an abusive "intellectual bootcamp" that breaks the individual in to playing a conventional role. You can avoid the cynicism and intellectual timidity that afflicts so many professional employees, he says, but doing so is not easy, and he discusses how it can be done.

While at *Physics Today*, Jeff played the most prominent role in staff efforts to improve working conditions, increase staff participation in decision-making, and broaden the range of viewpoints allowed in the magazine. He also led an effort to force *Physics Today* to live up to its advertised claim of being an affirmative-action employer, noting that the magazine was hiring and training only whites as editors, a pattern that eventually left the magazine with an all-white staff of 16 professionals and a non-white secretarial staff of 3.

In firing Jeff, the managers at *Physics Today* cited a statement, at the beginning of *Disciplined Minds*, that he had spent "some office time" writing the book. That constitutes "misconduct," they said. Jeff's colleagues, however, saw this charge more as a pretext to get rid of someone who was persistently pressing for changes in workplace policies. Indeed, the fact that the magazine's managers dismissed Jeff after so many years of service not only without a hearing, but also without asking him a single question about his work on the book, suggests that they were looking for an opportunity to remove him.

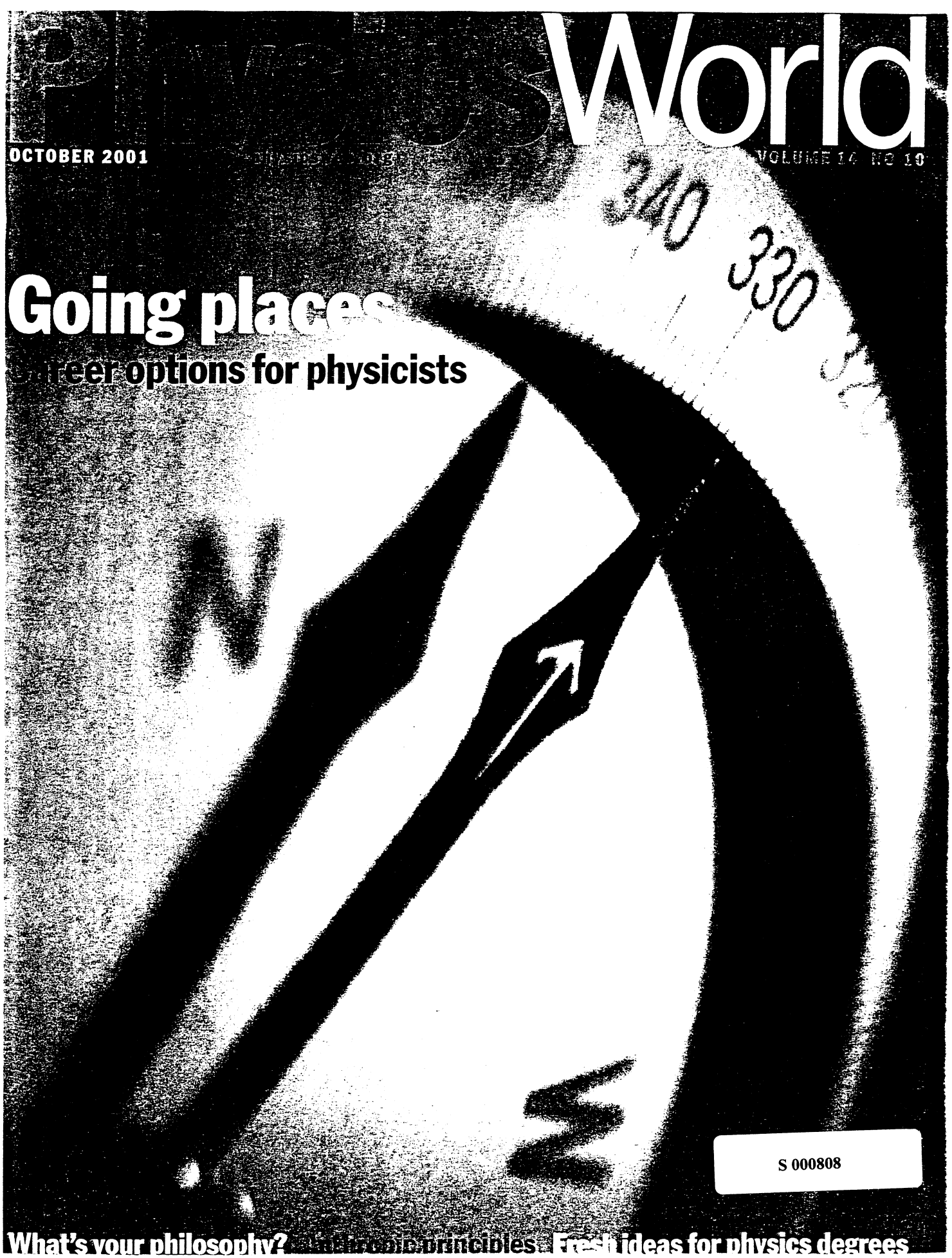
By the time *Disciplined Minds* was published, *Physics Today*'s managers had already tried unsuccessfully to silence Jeff with measures just short of dismissal. At one point, for example, they put gag orders on Jeff and another outspoken staff editor, warning that they would be fired if they said anything "counterproductive." These orders were eventually lifted due to pressure from coworkers. *Physics Today* even banned private conversations in the workplace, announcing that all conversations between staff members must be open to monitoring by managers. Jeff was not alone among his colleagues in finding these measures repressive.

The managers at *Physics Today* apparently thought the book would be perceived as so provocative that no one would object if they fired Jeff. They were wrong. Those lodging protests to date include sixteen former *Physics Today* staff members (including us), the National Writers Union, and 160 scholars, writers and educators in a wide range of fields. Even the State of Maryland, after an unemployment benefits hearing, rejected AIP's charge that Jeff's work on the book at the office constituted misconduct, finding that *Physics Today* fired Jeff without evidence that his spare-time writing interfered with his work for the magazine. During the years that Jeff was writing *Disciplined Minds*, *Physics Today* gave him two promotions and 19 salary increases based explicitly on the quantity and quality of his work for the magazine.

Physics World
OCTOBER 2001
VOLUME 14 NO 10

Going places

Career options for physicists



What's your philosophy? | Anthropic principles | Fresh ideas for physics degrees

CAREERS

Magazine firing backfires

Almost 600 American physicists have signed an open letter calling for the reinstatement of Jeff Schmidt to his position as a staff editor on *Physics Today*, the monthly magazine published by the American Institute of Physics (AIP). Schmidt was fired in May last year, soon after his book *Disciplined Minds: A Critical Look at Salaried Professionals and the Soul-Battering System that Shapes Their Lives* had been published by Rowman & Littlefield.

The book is a highly critical look at professional life, including academic life, in modern America. In the introduction Schmidt describes how "employers' emphasis on control and the bottom line is giving [professionals] only increased workloads, closer scrutiny by management and unprecedented anxiety about job security". And so it proved for Schmidt, who has a PhD in physics from the University of California at Irvine.

"A few days after [AIP authorities] saw the book," he recalls, "a group of managers took me to the personnel office and told me they were firing me over the book. They escorted me out of the building like a criminal after 19 years on the job."

What caused the dismissal? Marc Brodsky, executive director of the AIP, points to a passage in the introduction: "This book is stolen. Written in part on stolen time, that is...my job simply didn't leave me enough energy for a major project of my own...so I began spending some office time on my own work."

"We removed him for the statement he made that he was stealing from us: that is very close to an inflammatory statement, true or not," Brodsky told *Physics World*. "We work on a system of tremendous trust in people. We don't watch their hours. Stealing was in essence his own self-evaluation."

Schmidt, who has not found a new job, later modified his comments, saying that he worked on the book during his paid half-hour break at *Physics Today*. He has also fought his dismissal, gaining some powerful allies along the way. The linguist Noam Chomsky organized an open letter, signed by 147 academics, calling on Brodsky to reconsider Schmidt's firing, and a Washington law firm has agreed to represent Schmidt for free. Individual physicists have also written to the AIP.

Then, on 21 August this year, three physics professors – Talat Rahman of Kansas State University, George Reiter of the University of Houston, and Michael Lee of Kent State University – started to circulate a letter to Brodsky from the physics community. "While we do not necessarily agree with Jeff's views...we believe that free debate within the physics community is healthy," the letter states. "We urge you to reconsider your decision, and offer to reinstate Jeff as an editor at *Physics Today*. We ask that you publish this letter in *Physics Today*, to bring our concerns to the attention of the wider physics community."

Standing firm – Jeff Schmidt and his daughter Joshua Rose with the offending book

An accompanying note by former *Physics Today* staff members Chris Mohr and Jean Kumagai accuses the magazine's management of using the book as a pretext to dismiss an individual they regarded as a difficult employee because, among other things, he consistently pressed for changes in workplace policies. Brodsky refuses to discuss those charges. "I am personally reluctant to make public comments about an ex-employee," he says. He adds that *Physics Today* is unlikely to publish the letter "because the editor doesn't think we should air our employee disputes in our publication".

The letter was due to be delivered after *Physics World* went to press. "Hopefully it gives the AIP enough of an opportunity to review the case," says Rahman. "It would be good to see justification for what has been done. We want due process."

Several physicists have asked Robert Park, director of public information at the American Physical Society, why he has not written about the issue in his outspoken weekly column for the society's Web site. "The fact of an organized campaign has made me a little leery," says Park. Schmidt's comment about stealing "could have been treated jocularly," he says. "But if there had been earlier trouble with the employee, they would not have treated the statement that way."

Peter Gwynne
Boston, MA

NUCLEAR PHYSICS

New era for gamma rays

An accelerator in the US is to be upgraded to produce gamma rays that are one million times more powerful than any other source in the world. The High Intensity Gamma-ray Source (HIGS) at Duke University in North Carolina produces gamma rays by colliding electrons with laser photons. Thanks to a grant of $3.2m (about £2.2m) from the Department of Energy, the source will also produce gamma rays over a much wider range of energies than before.

The source consists of a storage ring, 54 m in diameter, into which two equally spaced electron bunches are injected. A free-electron laser system stationed half way round the ring converts one bunch of electrons into an intense ultraviolet laser beam. This pulse of light reflects from a mirror, returns the way it came, and collides head-on with the other electron bunch. Through the process of "inverse Compton scattering", the electrons boost the energy of the ultraviolet photons by a factor of some 16 million. The result: a beam of high-intensity gamma rays of well defined energy.

"It is this unique capability that is the most popular feature for nuclear physicists," says Vladimir Litvinenko, the Duke University physicist who designed the source's free-electron laser. "The ability to generate beams of mono-energetic gamma rays with tunable energy is critical for most of the nuclear experiments we carry out."

Almost 100 scientists from over 30 institutions currently use the source. For example, Norbert Pietralla, a nuclear physicist from Yale University, uses it to study nuclear resonance fluorescence (NRF), which provides valuable information about nuclei – such as their parity quantum number – that is almost impossible to obtain by other means. "HIGS opens up a whole new chapter in NRF research," says Pietralla.

Meanwhile, astronomers from the Max Planck Institute for Gamma-ray Astronomy in Mainz, Germany, want to use the HIGS facility to calibrate their Medium Energy Gamma-ray Astronomy (MEGA) telescope.

"The upgrade will allow us to perform experiments to test fundamental symmetries and provide detailed information on the mass difference between up and down quarks," says Henry Weller, a nuclear physicist at Duke. "There is a long list of experiments lined up for HIGS," says Litvinenko. "I can even see potential for medical and industrial applications."

John Moore

STATE OF MARYLAND
DEPARTMENT OF LABOR, LICENSING AND REGULATION
OFFICE OF UNEMPLOYMENT INSURANCE

NOTICE OF BENEFIT DETERMINATION

SSN: [redacted]
DATE MAILED: 06/26/2000
BENEFIT YEAR BEGINS: 06/04/2000

COLLEGE PARK CLAIM CENTER
P.O. BOX 1901
COLLEGE PARK MD 20740

MAIL REQUEST FOR APPEAL TO
LOCAL OFFICE ADDRESS ABOVE

JEFF SCHMIDT
3003 VAN NESS ST NW APT W406

WASHINGTON DC 20008 4830

ISSUE SIMPLE MISCONDUCT
SECTION OF LAW 8-1003
DATE OF DETERMINATION 06/26/2000
SPECIALIST ID EWCP1A

AMERICAN INSTITUTE OF PHYSICS
INCORPORATED
1 PHYSICS ELLIPSE
COLLEGE PARK MD 20740 3842

THE LAST DAY TO FILE AN APPEAL IS: 07/11/2000
(IF THIS DECISION IS CHANGED ON APPEAL, THE CLAIMANT WILL BE REQUIRED TO REPAY ANY RESULTING OVERPAYMENT.)

DETERMINATION:

THE CLAIMANT WAS DISCHARGE FROM AMERICAN INSTITUTE OF PHYSICS ON 6/2/00 BECAUSE IT WAS ALLEGED THAT THE CLAIMANT WROTE A BOOK ON COMPANY TIME.

INSUFFICIENT INFORMATION HAS BEEN PRESENTED TO SHOW THAT THE CLAIMANT'S ACTIONS CONSTITUTED MISCONDUCT IN CONNECTION WITH THE WORK. AS A RESULT, IT IS DETERMINED THAT THE CIRCUMSTANCES SURROUNDING THE SEPARATION DO NOT WARRANT A DISQUALIFICATION UNDER SECTION 8-1002 OR 8-1003 OF THE MARYLAND UNEMPLOYMENT INSURANCE LAW.

BENEFITS ARE ALLOWED, IF OTHERWISE ELIGIBLE.

S 000810

APPEAL RIGHTS:

CLAIMANT AND EMPLOYER: Section 8-509 of the Maryland Unemployment Insurance Law provides the right to appeal this determination. The appeal must be in writing and may be submitted in person or mailed to the Local Office within (15) days of the determination. If mailed, the appeal must be postmarked within (15) days of the date of this determination. A claimant who appeals a determination and remains unemployed must continue to file timely claims for each week. NO LATE CLAIMS WILL BE ACCEPTED. If an appeal decision results in reversal or modification of this determination, the claimant may be paid benefits previously denied or may be overpaid benefits previously paid.

SEE BACK OF FORM FOR PROVISIONS OF THE LAW

3 Sept. 99; complained to Jonathan Goodwin that I am being penalized for going along with Benka's wish that I have my review after 18 months rather than after 12 months. The 2% in the matrix assumes that reviews are annual.

(He had said earlier that before correction my raise would be 2% (actually 2.039% after round-off of amount to #1350); the range for my category (3.0 overall rating) is 2-3% and Benka chose 2%, he says.)

8 Sept-99; met with Benka at his request re: my complaints about review.

8 Sept. 99; Benka says they will interpolate my score in the 2-3% salary range, as I requested (that way the raised score would give me more salary).

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8 Sept. 99; Benka says they will interpolate my score in the 2-3% salary range, as I requested (that way the raised score would give me more salary).

AMERICAN INSTITUTE OF PHYSICS

INTER-OFFICE MEMORANDUM

TO: AIP Employees

FROM: Theresa C. Braun TCB **EXTENSION:** 3026/2292

DATE: November 10, 1998

SUBJECT: 1999 Salary Increase Guidelines

Attached is a copy of AIP's 1999 Salary Increase Guidelines.

In addition, the Management Committee has approved a 3% increase in AIP's salary grade ranges effective January 1, 1999. For example:
1998 Non-Exempt 9: $24,600-$31,550-$38,500 (Minimum, Midpoint, Maximum)
1999 Non-Exempt 9: $25,350-$32,500-$39,650 (Minimum, Midpoint, Maximum)

Your salary will not be affected by the adjustment to the salary structure unless it falls below the 1999 minimum of the salary range. If you have any questions; call Melinda Underwood at Extension 3044.

Note to Managers/Supervisors: The performance appraisal forms are available electronically.

1999 SALARY INCREASE GUIDELINES

PERFORMANCE RATING	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile
Consistently Exceeds Job Requirements *4.75 - 5.0* **5**	7 - 9%	6 - 8%	5 - 7%	5 - 6%
Exceeds Job Requirements *3.75 - 4.74* **4**	5 - 6%	4 - 5%	3.5 - 4.5%	3 - 4%
Meets Job Requirements *2.75 - 3.74* **3**	3.5 - 5%	2.5 - 4%	2 - 3%	2%
Partially Meets Job Requirements *1.75 - 2.74* **2**	0% Defer for 3 - 6 months (not retro)	0% Defer for 3 - 6 months (not retro)	0% Defer for 3 - 6 months (not retro)	0% Defer for 3 - 6 months (not retro)
Does Not Meet Job Requirements *1.0 - 1.74* **1**	0% Defer for 3 months (not retro) or Termination	0% Defer for 3 months (not retro) or Termination	0% Defer for 3 months (not retro) or Termination	0% Defer for 3 months (not retro) or Termination

ALL PROMOTIONS MUST BE REVIEWED BY THE DIRECTOR, HUMAN RESOURCES

Promotional Increase Guidelines:

Promotion to new position with increased responsibility - 3 to 5 %

Promotions that involve major changes in responsibility will be dealt with on an individual basis

AMERICAN INSTITUTE OF PHYSICS

AIP INTER-OFFICE MEMORANDUM

TO: All Employees of AIP

FROM: Theresa C. Braun TCB **EXTENSION:** 3030/2292

DATE: December 2, 1999

SUBJECT: Salary Increase Guideline Matrix – Year 2000

Attached is a copy of AIP's Year 2000 Salary Increase Guidelines.

In addition, the Management Committee has approved a 3% increase in AIP's salary grade ranges, effective January 1, 2000. For example:

1999

Grade	Range		
	Min	Mid	Max
Exempt 2	$26,575	$34,475	$42,375

Year 2000

Grade	Range		
	Min	Mid	Max
Exempt 2	$27,375	$35,513	$43,650

Your salary will not be affected by this adjustment to the salary structure unless it falls below the Year 2000 minimum of the salary range. If you have any questions, please call Jonathan Goodwin at Extension 3044.

Thank you.

\\AIPCP1\DATA\JGOODWIN\Matrix 2000 MEMO.doc

S 000815

YEAR 2000 SALARY INCREASE GUIDELINE

Performance Rating	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile
Consistently Exceeds Job Requirements *4.75 - 5.0* **5**	7% - 9%	6% - 8%	5% - 7%	5% - 6%
Exceeds Job Requirements *3.75 - 4.74* **4**	4.5% - 5.5%	4% - 5%	3.5% - 4.5%	3% - 4%
Meets Job Requirements *2.75 - 3.74* **3**	3.5% - 4.5%	2.5% - 3.5%	2% - 3%	2%
Partially Meets Job Requirements *1.75 - 2.74* **2**	0% Defer for 3 - 6 months (not retro)	0% Defer for 3 - 6 months (not retro)	0% Defer for 3 - 6 months (not retro)	0% Defer for 3 - 6 months (not retro)
Does Not Meet Job Requirements *1.0 - 1.74* **1**	0% Defer for 3 months (not retro) or Termination	0% Defer for 3 months (not retro) or Termination	0% Defer for 3 months (not retro) or Termination	0% Defer for 3 months (not retro) or Termination

ALL PROMOTIONS MUST BE REVIEWED BY THE DIRECTOR, HUMAN RESOURCES

Promotional Increase Guidelines:

Promotion to new position with increased responsibility - 3% to 5%

Promotions that involve major changes in responsibility will be dealt with on an individual basis

S 000816

AMERICAN INSTITUTE OF PHYSICS

INTER-OFFICE MEMORANDUM

November 10, 1997

TO: AIP Employees

FROM: Theresa C. Braun

SUBJECT: 1998 Salary Increase Guidelines

Attached is a copy of AIP's 1998 Salary Increase Guidelines. In addition, Management Committee has approved a 3% increase in AIP's salary grade ranges effective January 1, 1998. For example, previously a Non-Exempt 8 was $21,650-$27,600-$33,600 (minimum, midpoint, maximum), effective January 1, 1998, a Non-Exempt 8 will be increased by 3% making it $22,300-$28,450-$34,600 (minimum, midpoint, maximum).

Please feel free to call me or Melinda Underwood if you have any questions.

1998 SALARY INCREASE GUIDELINES

PERFORMANCE RATING	1ST QUARTILE	2ND QUARTILE	3RD QUARTILE	4TH QUARTILE
CONSISTENTLY EXCEEDS JOB REQUIREMENTS *4.75 - 5.0* 5	7 - 8%	6 - 7%	5 - 6%	4 - 5%
EXCEEDS JOB REQUIREMENTS *3.75 - 4.74* 4	5 - 6%	4 -5%	3.5 - 4.5%	2.5 - 3.5%
MEETS JOB REQUIREMENTS *2.75 - 3.74* 3	3.5 - 5%	2.5 - 4%	2 - 3%	2%
PARTIALLY MEETS JOB REQUIREMENTS *1.75 - 2.74* 2	0% DEFER FOR 3 - 6 MONTHS (NOT RETRO)	0% DEFER FOR 3 - 6 MONTHS (NOT RETRO)	0% DEFER FOR 3 - 6 MONTHS (NOT RETRO)	0% DEFER FOR 3 - 6 MONTHS (NOT RETRO)
DOES NOT MEET JOB REQUIREMENTS *1.0 - 1.75* 1	0% DEFER FOR 3 MONTHS (NOT RETRO) OR TERMINATION	0% DEFER FOR 3 MONTHS (NOT RETRO) OR TERMINATION	0% DEFER FOR 3 MONTHS (NOT RETRO) OR TERMINATION	0% DEFER FOR 3 MONTHS (NOT RETRO) OR TERMINATION

ALL PROMOTIONS MUST BE REVIEWED BY THE DIRECTOR, HUMAN RESOURCES

PROMOTIONAL INCREASE GUIDELINES:

PROMOTION TO NEW POSITION WITH INCREASED RESPONSIBILITY - 3 TO 5 %

PROMOTIONS THAT INVOLVE MAJOR CHANGES IN RESPONSIBILITY WILL BE DEALT WITH ON AN INDIVIDUAL BASIS

matrix98 (mku) 11/05/97

A I P Inter-Office Memorandum

28 March 1986

To: All Employees

From: H. William Koch H. William Koch

Subject: Employee Benefits

During the course of your employment with us, you have become aware of the many employee benefit programs provided by the Institute.

For each of the past several years, we drew up a schedule setting forth the costs of certain benefits paid by the Institute for each employee. Copies were distributed to all employees and were enthusiastically received.

In the belief that you are again interested in knowing the dollar value of the benefits paid in your behalf by the Institute, I am attaching a new schedule effective 1 January 1986.

If you have any questions about this schedule, please address them to Mrs. Theresa Braun, Manager of the Personnel Division, or Mr. Gerald F. Gilbert, Chairman of the Personnel Committee.

HWK:ds
Attachments

EMPLOYEE BENEFITS PERCENTAGE RELATIONSHIP TO SALARIES*

1986

ANNUAL SALARY	$8,000	$10,000	$12,000	$13,000	$14,000	$15,000	$16,000	$17,000	$18,000	$19,000	$20,000	$25,000	$30,000	$35,000	$40,000	$45,000	$50,000
FICA	$572.00	$715.00	$858.00	$929.50	$1,001.00	$1,072.50	$1,144.00	$1,215.50	$1,287.00	$1,358.50	$1,430.00	$1,787.50	$2,145.00	$2,502.50	$2,860.00	$3,003.00	$3,003.00
Dental Plan	177.24	177.24	177.24	177.24	177.24	177.24	177.24	177.24	177.24	177.24	177.24	177.24	177.24	177.24	177.24	177.24	177.24
Group Life Insurance	37.44	46.80	56.16	62.40	65.52	71.76	74.88	81.12	84.24	90.48	93.60	118.56	140.40	165.36	187.20	212.16	234.00
Hospitalization (BC/BS)	401.16	401.16	401.16	401.16	401.16	401.16	401.16	401.16	401.16	401.16	401.16	401.16	401.16	401.16	401.16	401.16	401.16
Major Medical	424.20	424.20	424.20	424.20	424.20	424.20	424.20	424.20	424.20	424.20	424.20	424.20	424.20	424.20	424.20	424.20	424.20
Prescription Drug Plan	64.08	64.08	64.08	64.08	64.08	64.08	64.08	64.08	64.08	64.08	64.08	64.08	64.08	64.08	64.08	64.08	64.08
Retirement	800.00	1,000.00	1,200.00	1,300.00	1,400.00	1,500.00	1,600.00	1,700.00	1,800.00	1,900.00	2,000.00	2,500.00	3,000.00	3,500.00	4,000.00	4,500.00	5,000.00
Vision Care Plan	67.44	67.44	67.44	67.44	67.44	67.44	67.44	67.44	67.44	67.44	67.44	67.44	67.44	67.44	67.44	67.44	67.44
NY State Disability	71.64	71.64	71.64	71.64	71.64	71.64	71.64	71.64	71.64	71.64	71.64	71.64	71.64	71.64	71.64	71.64	71.64
Long-Term Disability**	103.80	103.80	103.80	103.80	103.80	103.80	103.80	103.80	103.80	103.80	103.80	103.80	103.80	103.80	103.80	103.80	103.80
Total	$2,719.00	$3,071.36	$3,423.72	$3,601.46	$3,776.08	$3,953.82	$4,128.44	$4,306.18	$4,480.80	$4,658.54	$4,833.16	$5,715.62	$6,594.96	$7,477.42	$8,356.76	$9,024.72	$9,546.56
PERCENTAGE																	
On Retirement Plan	33.99%	30.71%	28.53%	27.70%	26.97%	26.36%	25.80%	25.33%	24.89%	24.52%	24.17%	22.86%	21.98%	21.36%	20.89%	20.05%	19.09%
Not on Retirement Plan	23.64%	20.43%	18.30%	17.49%	16.77%	16.17%	15.63%	15.16%	14.74%	14.37%	14.02%	12.75%	11.89%	11.28%	10.82%	9.99%	9.04%

* Employee Benefits Excluded: Paid Vacation, Paid Holidays, Tuition Reimbursement, Travel Insurance.

** On Retirement - $103.80 per year; Not on Retirement - $75.60 per year.

PHYSICS TODAY MEMO

TO: Jeff Schmidt
FROM: Steve Benka SB
SUBJECT: Part-time status

DATE: 14 September 1999

CC: James Stith, Terri Braun

You have requested a change in employment status from full-time to part-time. In your part-time capacity, you would perform two-thirds of your workload for *Physics Today*. You would complete 12 rather than 18 articles per year and be paid two-thirds of your full-time salary. Per AIP's HR policies, as a regular part-time employee working at least 25 hours per week, you will keep all of your employee benefits.

This arrangement is subject to periodic review; your status can be changed back to full-time, should management determine that your part-time status has an adverse impact on the magazine.

Your part-time status is effective as of 20 September 1999.

Approved:

9/17/99

J. Stith

S 000821

AMERICAN INSTITUTE OF PHYSICS

INTER-OFFICE MEMORANDUM

Date: 27 July 1993

TO: Jeffrey Schmidt

FROM: Human Resources

SUBJECT: Personnel Committee Action

Congratulations! At its most recent meeting, the Personnel Committee approved the recommendation for your promotion from Associate Editor Level II (grade 7) to Sr. Associate Editor (grade 8). Your annual rate of pay will be changed from $52,700 (second quartile) to $54,300 (second quartile) effective 1 August 1993. Your next review is scheduled for 1 March 1994.

REC'D 14MAR95

AMERICAN INSTITUTE OF PHYSICS

INTER-OFFICE MEMORANDUM

Date: February 28, 1995

TO: Jeffrey Schmidt

FROM: Human Resources

SUBJECT: Personnel Committee Action

At its most recent meeting, the Personnel Committee approved an increase in your annual salary from $56,900 (second quartile) to $59,400 (second quartile) effective March 1, 1995. Your next review is scheduled for March 1, 1996.

AMERICAN INSTITUTE OF PHYSICS

INTER-OFFICE MEMORANDUM

Date: April 1, 1996

TO: Jeffrey Schmidt - Physics Today

FROM: Human Resources

SUBJECT: Personnel Committee Action

At its most recent meeting, the Personnel Committee approved an increase in your annual salary from $59,400 (second quartile) to $62,400 (third quartile), effective March 1, 1996. Your next review is scheduled for March 1, 1997.

AMERICAN INSTITUTE OF PHYSICS

INTER-OFFICE MEMORANDUM

TO: Jeffrey Schmidt - Physics Today

FROM: Human Resources **EXTENSION:** 3026

SUBJECT: Personnel Committee Action

DATE: June 29, 1998

At its most recent meeting, the Personnel Committee approved an increase in your annual salary from $65,000 (3 quartile) to $66,500 (3 quartile), effective 3/1/98. Your next review is scheduled for 3/1/99.

AMERICAN INSTITUTE OF PHYSICS

INTER-OFFICE MEMORANDUM

TO: Jeffrey Schmidt - Physics Today

FROM: Human Resources **EXT : 2293**

DATE: September 3, 1999

SUBJECT: Personnel Committee Action

At its most recent meeting, the Personnel Committee approved an increase in your annual salary from $66,500 (3 quartile) to $67,850 (3 quartile), effective 9/1/99. Your next review is scheduled for 9/1/2000.

S 000826

From: Stephen Benka
To: Barbara Levi, Bert Schwarzchild, Charles Day, E...
Date: Wed, Jul 14, 1999 1:38 PM
Subject: ASA cites PT articles

I just learned that the Acoustical Society of America's "Science Writing Award to a Professional" went to Ilene Busch-Vishniac for her July 1998 article in PT, "Trends in Electromechanical Transduction." Jeff was the editor.

The previous such award from the ASA went to Mathias Fink for his March 1997 article in PT, "Time-Reversed Acoustics." Bert was the editor.

Well done, and well earned.

--Steve

CC: Dr. James Stith, Gary Squires, Jeff Bebee, Marc...

Mail Envelope Properties (378CCAEF.9F5 : 22 : 40788)

Subject: ASA cites PT articles
Creation Date: Wed, Jul 14, 1999 1:37 PM
From: Stephen Benka

Created By: ACP.AIP:SBENKA

Recipients
Post Office ACP.AIP
BLEVI (Barbara Levi)
BRODSKY CC (Marc Brodsky)
BSCHWARZ (Bert Schwarzchild)
CDAY (Charles Day)
EPLOTKIN (Elliot Plotkin)
GLUBKIN (Gloria Lubkin)
GSQUIRES CC (Gary Squires)
JBARKER (Judy Barker)
JBEBEE CC (Jeff Bebee)
JKUMAGAI (Jean Kumagai)
JSCHMIDT (Jeff Schmidt)
JSTITH CC (Dr. James Stith)
MDSMITH (Marian Smith)
PELLIOT (Paul Elliot)
RFITZGER (Richard Fitzgerald)
RWEHRENB (Rita Wehrenberg)
SBENKA (Stephen Benka)
SQUARLES (Sharon Quarles)
TFEDER (Toni Feder)
TGARY (Tonya Gary)
WKORNBER (Warren Kornberg)

Post Office ACP.apsdpost
GOODWIN (Irwin Goodwin)

Domain.Post Office	Route
ACP.AIP	ACP.AIP
ACP.apsdpost	ACP.apsdpost

Files	Size	Date & Time
MESSAGE	1219	Wednesday, July 14, 1999 1:37 PM

Options
Expiration Date: None
Priority: Standard

Subject: affirmative action update -Reply
Date: Thu, 5 Dec 1996 22:23:24 -0500 (EST)
From: jak@interport.net (Jean Kumagai)
To: ar429@lafn.org
CC: jak@interport.net

something from charles:

>Date: Thu, 05 Dec 1996 19:27:28 -0500
>From: Charles Harris <charris@aip.acp.org>
>To: jak@interport.net
>Subject: affirmative action update -Reply
>
>HR has run the ad in PG county and DC, which is the extent of their
>affirmative action.
>

S 000829

9JAN97; WENT TO TALK TO ALICE ROBINSON; SAYS TO ASK MELINDA UNDERWOOD FOR ANYTHING FROM OFCCP AND FOR A.U.P. AFFIRMATIVE ACTION POLICY.

ASKED MELINDA (WHO CALLED TERRE BRAUN); HAVEN'T YET RECEIVED OFCCP LETTER.

→ CALL BETTY MORGAN.

16JAN.97; CALLED BETTY MORGAN & TALKED TO EDWARD KO, TOO.
HE SAYS COMPLIANCE LTR. WENT OUT TUES. 14JAN97; HELD UP UNTIL THE NEW YEAR TO EVEN OUT THEIR PERIODIC QUOTAS. SAYS TO FILE COMPLAINT.
SHE SAYS COMPLAINT WILL GO TO PHILLY OFFICE FIRST. SHE SAYS THEY LOOK ONLY AT HIRES WITHIN THE LAST 2 YEARS. ("AAP" YEARS.)

From: Susan Funk
To: SBENKA, JBARKER, GCOLLINS, PELLIOT, TFEDER, CHARRI...
Date: 21 Apr 1997 (Mon) 9:16
Subject: Interviewee (R Corby Hovis) Schedule

Interview Schedule for

R Corby Hovis
21 April 1997

10:00 - 11:00	Steve Benka
11:00 - 11:30	Gloria Lubkin
11:30 - 12:15	ARTICLES Group (Jeff, Bert, Graham, & Paul)
12:15 - 1:00	Lunch, 3rd Floor Conference Room (will order from Franklin's Deli)
1:00 - 1:45	OBITS Group (Barbara, Paul, Susan, Rita)

From: Stephen Benka
To: ALL-PT
Date: 14 Apr 1997 (Mon) 13:48
Subject: Candidates for editor

To all PTers,

Three candidates will be coming here for interviews in the very near future. They are:

Charles Day, Wednesday, 16 April;
David Ehrenstein, Thursday, 17 April; and
Corby Hovis, Monday, 21 April.

I hope you will be here to meet them. Their resumes can be found in my office, middle bookshelf, second shelf from the floor, in a plastic tray.

We will take each of them out to lunch, probably Chinese. If you would like to go along on any or all three of those excursions, let Susan know.

Thanks for your participation.

--Steve

22 April 97
Parikh
She could be very good, but I don't think we can make a useful assessment without an interview. I think an interview would be worth the effort at this time because of her high potential. - Jeff

103 Maplewood Dr.
Ithaca, NY 14850
March 27, 1997

Dr. Steven Benka
Editor, *Physics Today*
One Physics Ellipse
College Park, MD 20740

Dear Dr. Benka:

I would like to join the AIP community as an associate editor for *Physics Today.* My background and experience make me a highly-motivated, well-qualified candidate for the position of Associate Editor. I am graduating from Cornell University with a Ph.D. in Experimental Physics, and a special interest in communication of scientific ideas through writing. With my unusually interdisciplinary background and my experience in teaching writing, I am well equipped to edit articles on a broad range of technical and non-technical subjects.

I possess the excellent writing and communication skills which come from the strong liberal arts education of my undergraduate years at Yale University (B.S. Physics, 1989, summa cum laude). My graduate research at Cornell University, which spans the disciplines of Physics, Planetary Science, and Chemical Engineering, has provided me with unique strengths in understanding and communicating ideas across many different fields. In writing, the guidance of my late committee member, Dr. Carl Sagan, has inspired me to convey the excitement of a technical subject along with the scientific content of the material.

The potential of writing to educate and inspire has led me to focus upon learning and teaching writing as a means to communicate and understand scientific ideas. While conducting my research and teaching physics at Cornell University, I took courses and workshops on writing and teaching writing. I am active in the Writing in the Majors Program at Cornell, which seeks to incorporate writing into courses on different subjects to enhance student comprehension of course material and increase student abilities to communicate scientific information effectively. As a teaching assistant for Professor David Mermin's course on special relativity and chaos, I have trained non-majors to grasp difficult scientific concepts through the use of discussion and essay writing assignments. I am currently exploring the possibilities for incorporating writing into the *Physics of Musical Sound* course I am teaching. In addition, I am taking an independent study writing course for graduate students.

I would especially welcome the opportunity to interact with the physics community and the staff involved in the production of *Physics Today.* I would be pleased to discuss with you how my background and experience could contribute to your magazine. Enclosed is my resume.

Thank you very much for your consideration of my application.

Sincerely,

Nimmi C Parikh

Nimmi C. Parikh

S 000833

From: Susan Funk
To: SBENKA, JBARKER, GCOLLINS, PELLIOT, TFEDER, CHARRI...
Date: 16 Apr 1997 (Wed) 17:18

Interview Schedule for

David Ehrenstein

10:00 - 11:00	Steve Benka
11:00 - 11:30	Charles Harris
11:30 - 12:15	ARTICLES Group (Jeff, Bert, Graham, Paul & Jean)
12:15 - 1:00	Lunch, 3rd Floor Conference Room (will order out either Seven Seas or Franklin's Deli)
1:00 - 1:45	OBITS Group (Barbara, Paul, Susan, Rita)

3:00	ARTICLES MEETING

From: Susan Funk
To: SBENKA, JBARKER, GCOLLINS, PELLIOT, TFEDER, CHARRI...
Date: 16 Apr 1997 (Wed) 9:59
Subject: Schedule with Interviewee

Interview Schedule for

Charles Day

10:00 - 10:30	Steve Benka
10:30 - 11:15	ARTICLES Group (Jeff, Bert, Graham, Paul & Jean)
11:15 - 11:45	Charles Harris (if not available, OBITS Group, 11:15 - 12:00)
11:45 - 12:30	OBITS Group (Barbara, Paul, Susan, Rita) or Charles Harris 12:00 - 12:30, if unavailable earlier
12:30 - ?	Lunch, 3rd Floor Conference Room (will order out either Seven Seas or Franklin's Deli)

From: Jeff Schmidt
To: BRODSKY
Date: 7 Nov 1997 (Fri) 10:36
Subject: Follow-up on meeting

Marc --

Thanks again for meeting with me about affirmative action at Physics Today. I suggest that you talk also with Jean Kumagai, who is very knowledgeable about the affirmative action issue at the magazine. Also, if you would like more ideas about ways in which AIP could take affirmative action, you might wish to establish an affirmative action committee.

-- Jeff

CC: jschmidt

Mail Envelope Information

Subject: Follow-up on meeting
Creation Date: 7 Nov 1997 (Fri) 10:36
From: Jeff Schmidt

Created By: ACP.AIP:jschmidt

Recipients	**Action**	**Date & Time**
Post Office ACP.AIP 10:43 am	Delivered	7 November 1997
BRODSKY (Marc Brodsky) 11:01 am	Opened	7 November 1997
jschmidt CC (Jeff Schmidt) 10:40 am	Opened	7 November 1997

Domain.Post Office	**Delivered**	**Route**
ACP.AIP	7 November 1997 10:43 am	ACP.AIP

Files	**Size**	**Date & Time**
MESSAGE	376	7 November 1997 10:36 am

Options

Auto Delete:	No
Expiration Date:	None
Notify Recipients:	Yes
Priority:	Normal
Reply Requested:	No
Return Notification::	None
Concealed Subject:	No
Security:	Normal
To Be Delivered:	Immediate
Status Tracking:	Delivered & Opened

I showed this ad to AIP CEO Brodsky 5 Nov. 97

Reaffirming Affirmative Action

At a time when affirmative action is being widely debated and often misinterpreted, it's important to understand its precise meaning. Affirmative action, as it was originally conceived — Executive Order 11246, signed by President Lyndon Johnson — was not intended to provide preferences on the basis of race. In fact, subsequent interpretation by the Department of Labor *explicitly prohibits* preferences solely on the basis of race. However, it does acknowledge that a society with a history of deeply rooted exclusionary practices demands proactive policies to create opportunity and to eliminate both conscious and inadvertent discrimination.

Enormous gains have resulted from well-designed affirmative action policies. Consider the engineering field. A quarter of a century ago, African Americans, Latinos and American Indians — then 18 percent of the college-age population and the fastest growing component of the nation — comprised only one percent of the engineering workforce. Whatever forces caused this underrep-

A society with a history of deeply rooted exclusionary

became more adaptable, more flexible and less resistant to new ideas — essential attributes in the rapidly changing global marketplace.

ating students' qualifications than rigid numerical standards imposed by external agencies or by the courts. Moreover, the nation is well served by universities that have the freedom to create a healthy, richly diverse intellectual

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Carol E. Meyer
Managing Partner
Andersen Consulting

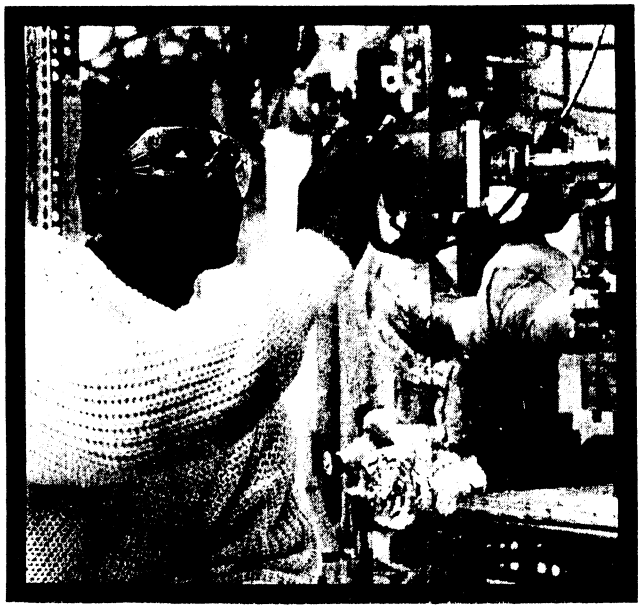
W. Douglas Ford

S 000838

Reaffirming Affirmative Action

At a time when affirmative action is being widely debated and often misinterpreted, it's important to understand its precise meaning. Affirmative action, as it was originally conceived — Executive Order 11246, signed by President Lyndon Johnson — was not intended to provide preferences on the basis of race. In fact, subsequent interpretation by the Department of Labor *explicitly prohibits* preferences solely on the basis of race. However, it does acknowledge that a society with a history of deeply rooted exclusionary practices demands proactive policies to create opportunity and to eliminate both conscious and inadvertent discrimination.

Enormous gains have resulted from well-designed affirmative action policies. Consider the engineering field. A quarter of a century ago, African Americans, Latinos and American Indians — then 18 percent of the college-age population and the fastest growing component of the nation — comprised only one percent of the engineering workforce.



became more adaptable, more flexible and less resistant to new ideas — essential attributes in the rapidly changing students' qualifications than rigid numerical standards imposed by external agencies or by the courts. Moreover,

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Vice President
Technical Affairs
Ford Motor Company

Saul K. Fenster
President
New Jersey Institute of Technology

Carol E. Meyer
Managing Partner
Andersen Consulting

S 000839

Whatever forces caused this underrepresentation, American industry was deprived of a tremendous wealth of talent and minority communities had little access to a crucial, high growth sector of our economy.

In 1974, leaders of the nation's preeminent universities and technology-intensive corporations made an unequivocal commitment, backed by substantial resources, to establish NACME, the National Action Council for Minorities in Engineering, Inc. This was purely a private sector initiative to create access to the engineering profession. We've made remarkable progress. NACME's scholarship programs, for example, have made it possible for 6,500 minority students to obtain engineering degrees since 1980.

During this period, diversity increased in our universities and in the workplace. The new multicultural environment greatly enriched the quality of intellectual discourse on our campuses, boosted creativity and innovation in our companies and profoundly altered the way we do business. Heterogeneity yielded higher quality business solutions, more effective decisions, new market opportunities and improved product development. Our institutions ing global marketplace.

A society with a history of deeply rooted exclusionary practices demands proactive policies to create opportunity and to eliminate both conscious and inadvertent discrimination.

In building access to our companies and our institutions, we've worked with many students who were products of substandard public school systems. We learned that their long-term academic potential cannot be determined by one-dimensional measures such as standardized test scores. Given new opportunities through NACME programs, they've attained highest academic honors at the nation's most competitive engineering colleges, despite enormous economic disadvantages. It's not *preferential treatment* when we provide a chance for highly motivated students to realize their full potential. The alternative is to deny these extraordinary young people the possibility of higher education, based on underachievement caused by powerful external circumstances.

NACME's scholarship programs have made it possible for 6,500 minority students to obtain engineering degrees since 1980. It's not *preferential treatment* when we provide a chance for highly motivated students to realize their full potential.

We believe that the expertise of university admissions officers is more reliable in the complex task of evaluating the nation is well served by universities that have the freedom to create a healthy, richly diverse intellectual environment.

Today, African Americans, Latinos and American Indians comprise 28 percent of the college-age population and a third of the birth rate. The tremendous progress we've made notwithstanding, only nine percent of the bachelor's degree recipients in engineering and two percent of the doctorates in 1995 were from these groups. While we do not suggest that the proportion of engineering graduates should precisely mirror the population distribution, in a profession as crucial to the nation's future as engineering — a profession that's essential to wealth creation, economic growth and upward mobility — it's imperative that we continue to reduce this exceedingly large gap.

Now that the seeds of affirmative action planted three decades ago are beginning to bear fruit, we maintain our unequivocal support of NACME's mission. As members of the NACME Board of Directors, our objective is equitable treatment and a fair opportunity for all to compete on an equal footing. We believe that developing and utilizing the full potential of the entire population of our society is critical not only to our nation's economic growth but to our political stability, to our social well-being and to our global leadership responsibilities. ■

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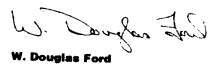

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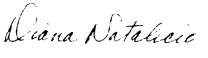
Executive Vice President
Petroleum Products Sector
Amoco Corporation

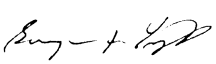
Michael P. Morley
Senior Vice President and
Director, Human Resources
Eastman Kodak Company

William L. Friend
Director
Bechtel Group, Inc.



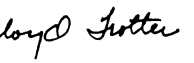
Diana Natalicio
President
The University of Texas at El Paso

R. E. Galvin
President
Chevron U.S.A. Production Company

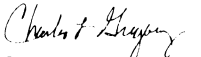


Benjamin F. Payton
President
Tuskegee University

Joseph M. Gingo
Vice President, Asian Region
The Goodyear Tire & Rubber Company



Lloyd G. Trotter
President and CEO
GE Electrical Distribution & Control



Charles L. Gregory
Senior Vice President
Human Resources
Sony Electronics, Inc.

Ted G. Westerman
Chief Administrative Officer
Hughes Electronics
Corporation

Charles O. Holliday, Jr.
Executive Vice President
DuPont and
Chairman, DuPont Asia Pacific

NACME

NACME, Inc.
Empire State Building
350 Fifth Avenue, Suite 2212
New York, NY 10118-2299

http://www.nacme.org

From - Tue Nov 04 14:14:07 1997
Received: from amsterdam.interport.net (amsterdam.interport.net [199.184.165.9])
by po0.wam.umd.edu (8.8.8.Beta2/8.8.7) with ESMTP id SAA14524
for <jeff@wam.umd.edu>; Tue, 4 Nov 1997 18:51:55 -0500 (EST)
Received: from [207.38.249.23] (ts3port23.port.net [207.38.249.23])
by amsterdam.interport.net (8.8.5/8.8.5) with SMTP id SAA09146;
Tue, 4 Nov 1997 18:51:00 -0500 (EST)
Date: Tue, 4 Nov 1997 18:51:00 -0500 (EST)
X-Sender: jak@pop.interport.net
Message-Id: <v0153050ab08516017eb6@[207.38.249.23]>
Mime-Version: 1.0
Content-Type: text/plain; charset="iso-8859-1"
To: Jeff Schmidt <jeff@wam.umd.edu>
From: jak@interport.net (Jean A. Kumagai)
Subject: Re: Brodsky note
Cc: jak@interport.net
Content-Transfer-Encoding: 8bit
X-MIME-Autoconverted: from quoted-printable to 8bit by po0.wam.umd.edu id
SAA14524
X-UIDL: f66877e7a4c7c909c7ca002c52a7ab5e
Status: U
X-Mozilla-Status: 0015
Content-Length: 4874

Jeff,

Some minor changes are imbedded in the text, in brackets. I think this document is very compelling -- although I wonder how committed Brodsky himself is to affirmative action. I guess you'll find out. Maybe you'll even be able to change his thinking for the better.

Jean

>5 November 1997
>
>Marc,
>
> Thank you for asking me to meet with you today about my statement to the Physics Today advisory committee that the magazine has failed to live up fully to its claim that it is an affirmative-action employer.

>

> I am taking this opportunity to outline the history of the issue and to discuss the important difference between equal opportunity and affirmative action.

>

> At a November 1996 Physics Today meeting, some of us on the staff raised the issue of affirmative action and the lack of diversity at the magazine.

[Several weeks earlier, one of the PT editors had submitted his resignation, thus presenting us with an immediate opportunity to work toward correcting the situation.]At [the] meeting, I said I would help monitor the situation in the future, as did Jean Kumagai, who is the only minority among the 18 individuals who work at Physics Today.

>

> On 14 April 1997 the Physics Today staff learned that out of the 85 applicants for [the] editorial opening at the magazine, three had been selected to come in for interviews -- all white males. [SHOULD YOU MENTION THE EDITING TEST? IT'S LIKELY HARRIS OR BENKA WILL BRING IT UP, IF ASKED ABOUT WHAT HAPPENED.]Among the 85 applicants were a number of potentially qualified minorities and women. Jean and I argued that if Physics Today were truly committed to affirmative action, it would also bring in some of these applicants. That could have been done easily, but Charles Harris and Steve Benka refused, saying that it was not worth the delay of a week or so that it would cause. We felt that this revealed Physics Today's priorities (and AIP's, too, because Charles had told us that he had discussed [the institute's] affirmative action [policy] with Terri Braun [after] [DELETEthe issue came up at] the November 1996 staff meeting), and that affirmative action clearly was low on the list.

>

> The decisive factor turned out to be that while Charles believes in equal opportunity, he does not believe fully in affirmative action. He told me, for example, that he would not hire a minority who is qualified to do the job unless that individual was <u>more</u> qualified than all 84 of the other candidates. [Unfortunely,]Such a policy can lead to an all-white staff even though many minorities are qualified to do the work. [REORDER THE NEXT TWO SENTENCES: "For reasons outside of our immediate control, qualified minorities are less likely to have credentials beyond those needed to do the work. Thus, the qualified

minorities are passed over in favor of white applicants who have such superfluous credentials."] The qualified minorities are simply passed over [in favor of] white applicants [who] have credentials beyond [those needed to] do the work. For reasons outside of our immediate control, qualified minorities are less likely than qualified whites to have [such] superfluous credentials. The result is a staff that doesn't look like the population of people who are qualified to do the work. Thus the Physics Today staff does not look like the physics community, the journalism community, the Washington community or the nation as a whole. As long as Physics Today fails to embrace affirmative action, minorities will continue to be in the subset of applicants deemed qualified to do the job, but rarely among those actually hired. Thus "equal opportunity" amounts to a de facto "whites only" hiring policy at Physics Today. Historically, affirmative action was instituted to overcome this shortcoming of equal opportunity.

>

> Charles also told me that staff diversity is of no value to the magazine -- except to make the office a more entertaining place to work. Therefore the fact that a particular job candidate would contribute to the diversity of the staff counts for nothing, he said.

>

> [In response to our concerns, Steve and Charles] made [DELETE only] two [token gestures?]small concessions[DELETE to the pressure that we applied]: They told a few organizations of minority scientists about the job opening, and, after they filled the position with a white male, they phoned a few of the minorities whom they had judged to be "promising candidates."

>

> Ever since my disagreement with Charles over affirmative action at Physics Today, he has treated me a little bit like an unwelcome troublemaker. You should be able to verify any point that I have made in this note without attributing it; by doing it that way, you can avoid exacerbating this problem.

>

>

>[s] Jeff

>

>

Received: from m14.boston.juno.com (m14.boston.juno.com [205.231.101.193])
by po2.wam.umd.edu (8.9.0.Beta6/8.9.0.Beta6) with ESMTP id LAA10318
for <jeff@wam.umd.edu>; Thu, 28 May 1998 11:39:08 -0400 (EDT)
Received: (from lugenbold@juno.com)
by m14.boston.juno.com (queuemail) id LiJ03019; Thu, 28 May 1998 11:37:55 EDT
To: jeff@wam.umd.edu
Subject: AA
Message-ID: <19980528.120536.4631.0.Lugenbold@juno.com>
X-Mailer: Juno 1.38
X-Juno-Line-Breaks: 0-1,13-14,21-22,27-29
From: lugenbold@juno.com (Paul J Elliott)
Date: Thu, 28 May 1998 11:37:55 EDT
Status:
X-Mozilla-Status: 0005
Content-Length: 1835

Jeff,

On my midnight cruise home, I caught part of a rebroadcast of a speech given at the National Press Club yesterday by Julian Bond. It was forceful, eloquent, and compelling, pressing the case for civil rights and affirmative action and the need for socioeconomic and attitudinal change; excoriating the Republicans (and noting aptly how they have demonized minorities and homosexuals now that the Evil Empire is no longer a national threat); and making points about American society that parallel what's happened at PT--specifically, the trend toward blaming the victims rather than the oppressors, toward magnifying the perceived threat posed by any minority, and toward using a rosy overview of the prosperity of the larger system to mask the plight of the less fortunate.

I haven't heard Bond talk publicly for several years--and never that vibrantly. I recall a time when he had a television show on which he and a guest would chat boringly about some topic or other. Yawn. Perhaps his becoming the NAACP chairman has reinvigorated him, and that, together with his restored health and more settled private life, may well bring him back to the national stage. Perhaps he's at long last on the brink of fulfilling his youthful promise.

Anyway, I suggest you watch for any newspaper reports on yesterday's speech, as I will. Maybe there's a transcript available. It's more than a matter of general interest, in that I think there's a good chance that Bond said some things worth quoting to and at Stith and Brodsky--and especially Bert.

Paul

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by po4.wam.umd.edu (8.9.0.Beta6/8.9.0.Beta3) with SMTP id AAA06067;
Sun, 7 Jun 1998 00:44:50 -0400 (EDT)
Message-ID: <357A42DD.1C8F@wam.umd.edu>
Date: Sun, 07 Jun 1998 00:35:58 -0700
From: Jeff Schmidt <jeff@wam.umd.edu>
X-Mailer: Mozilla 3.01Gold (Win16; I)
MIME-Version: 1.0
To: Paul J Elliott <lugenbold@juno.com>
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Hi Paul,

Thanks for the message about AA and Julian Bond. Even though you sent it a few days ago, I just read it now, because I check my UMD account so infrequently. Yes, Bond is a great speaker, and he has an amazing voice. It is always striking to see how relevant the important national issues are to what's going on at this little 20-person operation known as Physics Today, like you say. I agree with you that it would be good to find some "outside" stuff to quote to Stith, Brodsky, Bert and others.

Jeff

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by po2.wam.umd.edu (8.9.0.Beta6/8.9.0.Beta6) with SMTP id
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Date: Tue, 07 Jul 1998 14:44:35 -0400
To: jeff@wam.umd.edu
From: "Graham P. Collins" <gpc@sff.net>
Subject: EEOC
Status:
X-Mozilla-Status: 0005
Content-Length: 526

By the way, I was thinking about your affirmative action complaint to Brodsky, and I was wondering if you could give me a copy of the most pertinent documents. e.g., whatever it was that AIP had agreed to do, which we know they haven't done. If I remember rightly, the full documentation is far more voluminous than I would be interested in.

Maybe you could bring along a copy for me at this week's soiree.

Also, do you happen to know if any the finalist candidates this time around are minorities?

-- Graham

MIT REACTS TO COLD FUSION ■ THE GAIA HYPOTHESIS: IS THE EARTH ALIVE? ■

Technology Review

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JULY 1989

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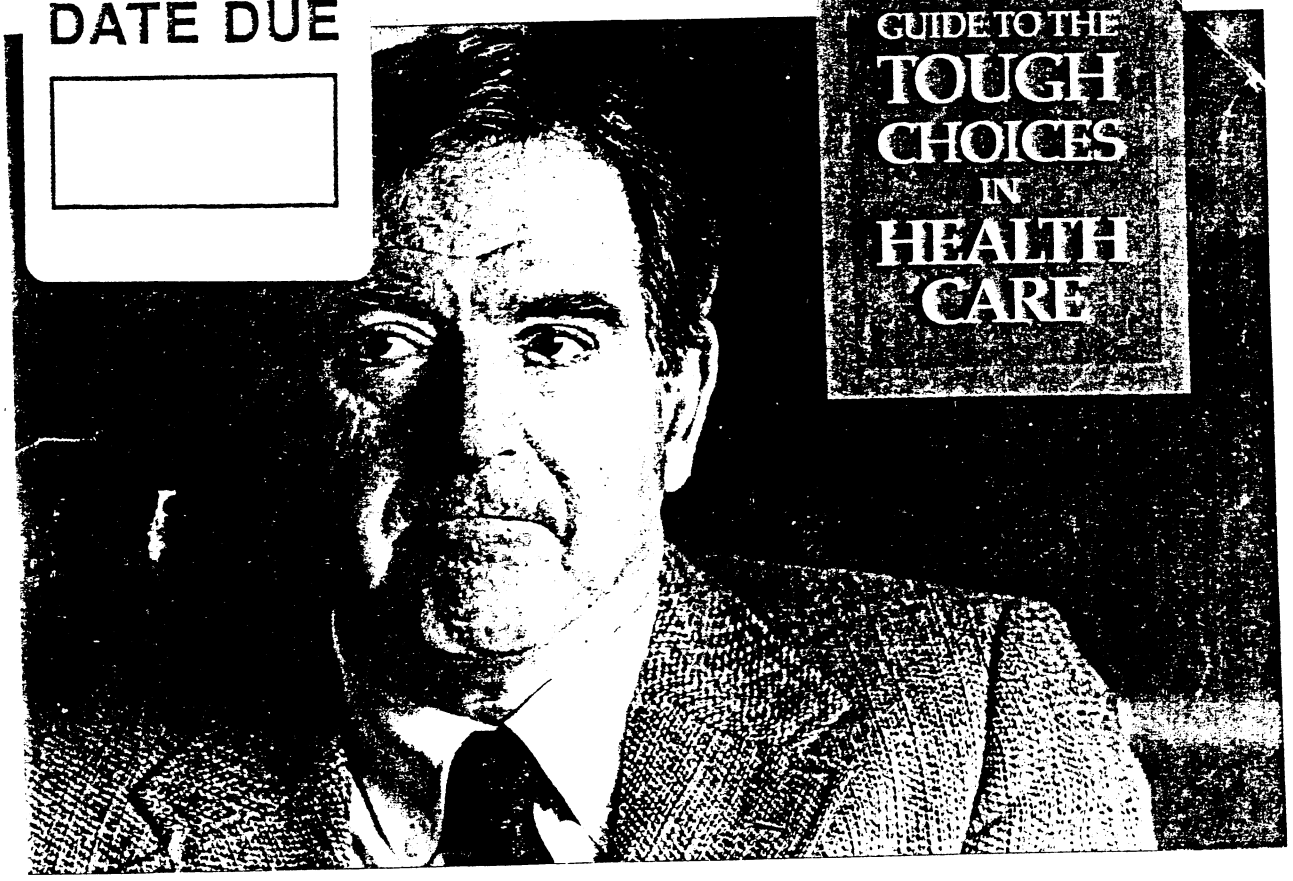
ONE DOCTOR'S GUIDE TO THE TOUGH CHOICES IN HEALTH CARE



An Interview with Arnold Relman of the New England Journal of Medicine

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JULY 1989 VOL. 92 NO. 5

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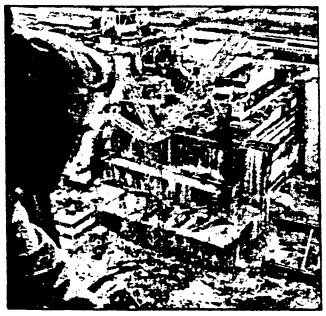
30 HEALTH CARE

62 BIOTECH



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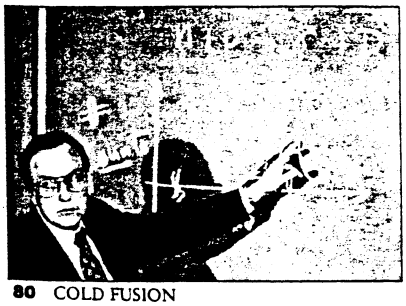
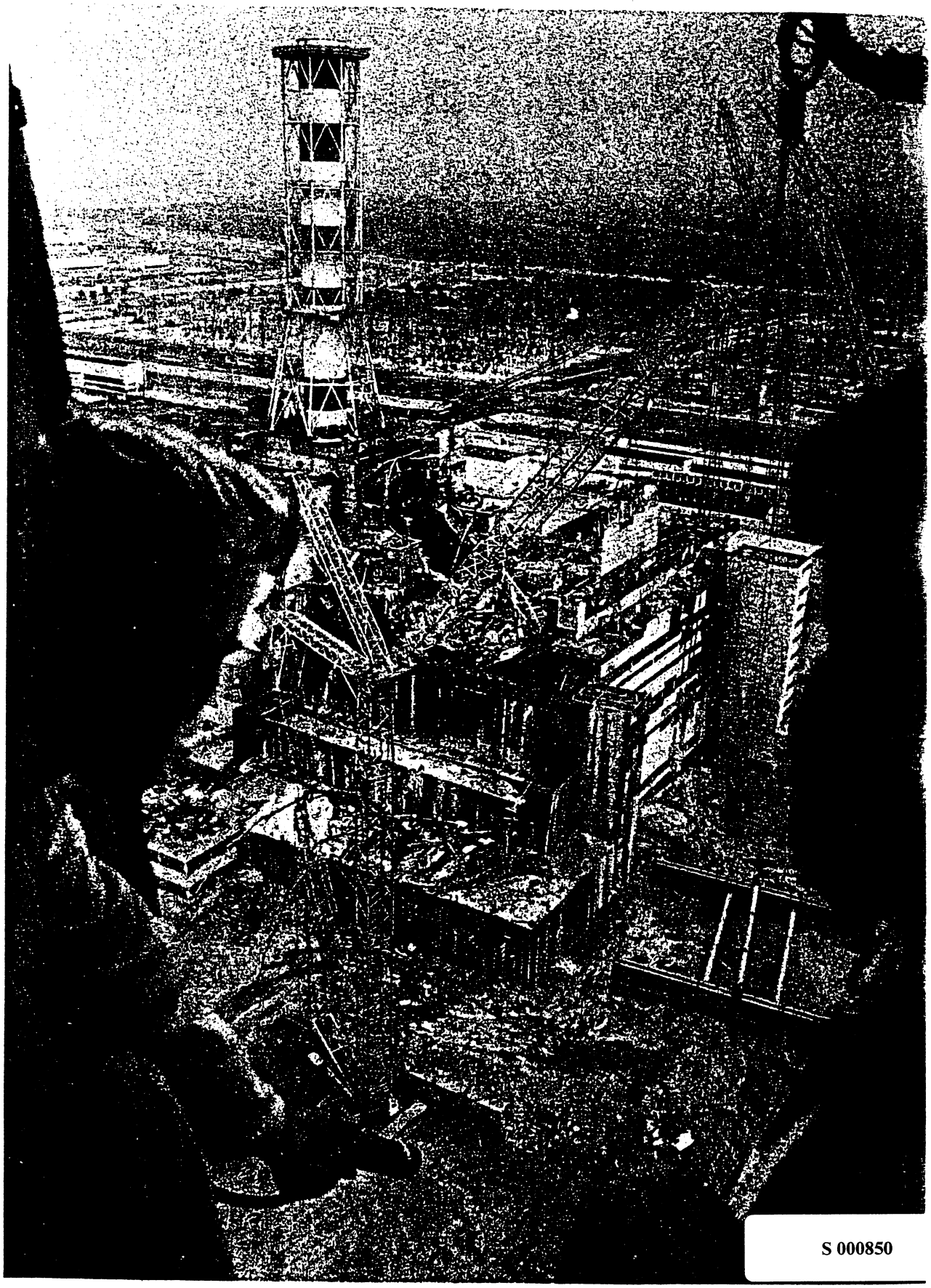


80 COLD FUSION



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PHOTOGRAPH: IGOR KOSTIN, NOVOSTI PRESS AGENCY

BY WILLIAM SWEET

Chernobyl
What Really Happened

Soviet technical fixes adopted since Chernobyl don't eliminate the possibility of a recurrence—and may make one more likely.

THREE years after the April 1986 nuclear catastrophe at Chernobyl, this is an opportune time to take stock of the accident, the technical measures the Soviets have taken to improve reactors like those at Chernobyl, and the implications of the accident for other types of reactors. As the shock of the accident has been absorbed, Western experts have become noticeably more willing to voice their concerns, air disagreements about technical issues, and state the truth exactly as they see it.

Soviet officials turned immediately to reactor experts in the West for advice. The Soviets made a remarkably full disclosure of their knowledge about the accident at a September 1986 meeting held under the auspices of the International Atomic Energy Agency in Vienna. During the next two years, they invited at least a dozen outside experts to come to the Soviet Union for a firsthand look.

Until recently, however, the Western analysts talked mainly with each other, and when they reported their findings in official reports or in articles for the public, they tended to couch their conclusions in cautious bureaucratic language. Obviously, they did not want to jeopardize their delicate relations with the Soviet Union and embarrass their hosts. And they were wary of the impact their statements would have in their own countries.

That reticence has declined with time. To get a snapshot of current expert opinion, I conducted extensive interviews with staff members of the Nuclear Regulatory Commission (NRC) who studied the accident, two former NRC commissioners, members of a Department of Energy (DOE) study team, leading Canadian reactor experts, and scientists from industry, academia, and national laboratories.

What follows represents an effort to reach a consensus view of the accident. The central conclusion is that a runaway nuclear reaction set off a chain of events that severely damaged the reactor core and surrounding structures. This damage set the stage for a second explosion, which was much more violent than the first and almost certainly was a full-fledged nuclear explosion.

Because many factors could have set this chain of

A technical crew monitors radiation levels over Unit 4 soon after it exploded.

events in motion, the technical fixes adopted by the Soviets do not preclude the recurrence of an equally catastrophic event at a Chernobyl-type reactor. Some of the fixes may even increase the probability of a future catastrophe.

Ever since the first nuclear power plants were built in the 1950s, the industry has insisted they can't explode like bombs. Chernobyl casts doubt on whether that is true of all power reactors. Of the plants operating in North America, however, only the Canadian plants are susceptible to a Chernobyl-type accident.

The possibility of such an accident in a U.S. reactor is vanishingly small. Here, the worst-case scenario envisages that a loss of coolant would lead to a buildup of heat because of continuing reactions in the fuel. The fuel would melt and burrow through the plant bottom into the earth.

The Chernobyl accident was fundamentally different. After the coolant was lost, or some equally serious event occurred, nuclear reactions escalated rapidly and uncontrollably. They kept doing so until the plant's structure disassembled—that is, until Chernobyl Unit 4 exploded.

The RBMK Reactor

The Chernobyl reactor is an RBMK, which is a derivative of the reactors built to produce plutonium for the first Soviet atomic bombs. Since those plants were military machines, public and occupational safety received relatively short shrift in their design. While the United States sought from the outset to assure civilian control of nuclear technology, and established the NRC in the early 1970s to independently regulate power reactors, Soviet development of both plutonium and power reactors remained under narrow bureaucratic authority until after Chernobyl. As a result, the Soviets designed a reactor that never should have been built, and they failed to familiarize its operators adequately with its defects.

The RBMK is a graphite-moderated, water-cooled reactor, built to be fueled while running. The reaction is driven by neutrons released as uranium atoms split. The uranium fuel is arranged in pins that are contained in 1,661 zirconium-alloy pressure tubes, which are imbedded vertically in a 2,000-ton pile of graphite blocks. The graphite slows down neutrons released by uranium fission, enhancing their ability to induce more additional fissions so the reaction can sustain itself.

Water, pumped up through the pressure tubes, comes to a boil in the middle of the pile, and steam is carried off to the turbine systems that generate electricity. Control rods penetrating the pile regulate the reaction rate—that is, the power level—by capturing neutrons and damping the unit's reactivity.

One of the RBMK's principal defects is that it tends to gain power rather than slow down when water is lost or converts to steam. In all the reactors licensed to operate in the United States, the fission

WILLIAM SWEET is author of The Nuclear Age: Atomic Energy, Proliferation and the Arms Race *(*Congressional Quarterly, *1988). He writes frequently about nuclear arms control and disarmament for the* Bulletin of the Atomic Scientists *and other publications.*

PHOTOGRAPH: EOSAT COMPANY

Far left: Three days into the accident at Chernobyl, color-enhanced satellite photos depict Unit 4 as a glowing hot spot (A). Also visible are Units 1 and 2 (B), as well as the site where the Soviets probably were building more reactors of the same type (C).

Left: Like Unit 4, Unit 1 was an RBMK reactor. The photo shows Unit 1's control board in June, two months after the Unit 4 disaster.

rate slows if water is lost, so the system tends to be self-correcting. In the RBMK, fissions increase if water converts faster than expected or if there is a sudden leak.

This highly undesirable feature, called a positive-void effect, can make the reactor go out of control. The effect is especially strong if the RBMK is operating at low power. Ironically, the reactor is much more prone to go out of control when it has been in operation for a long period of time and the fuel is relatively depleted.

Aggravating the risks of the positive-void factor is the fact that the unmodified RBMK has a slow and perversely designed control-rod system. As Chernobyl revealed, that system could not be counted on to respond quickly enough to sudden changes in reactivity, and inserting control rods might even increase rather than dampen reactivity.

A third major design defect is the RBMK's inadequate containment. The containment system is predicated on the dubious assumption that the worst-case accident would result from a rupture of a single major water pipe at the bottom of the pile, where water is pumped up through the pressure tubes. Thus, the designers compartmentalized the bottom of the reactor, and the newer versions of the RBMK have a pool underneath. In the event of a tube rupture in the lower part of the reactor, the pool condenses steam, prevents pressure from building up too high, and captures water contaminated by damaged fuel.

The top of the reactor, however, is left relatively defenseless in all the RBMKs built or under construction. While a gigantic steel slab weighing about 1,000 tons seals the top of the reactor, all the pressure and control tubes penetrate this cap. Surprisingly little pressure can lift it, breaking all the pressure tubes and destroying the control mechanism. No kind of containment surrounds the tube, control, and refueling systems at the reactor's top, so if it lifts, radioactive and irradiated materials escape directly into the poorly sealed building and hence into the environment.

According to a calculation by Herbert Kouts at Brookhaven National Laboratory, 6 pounds per square inch (psi) would lift the lid. A rupture of just several of the 1,661 tubes would dump enough boiling liquid into the reactor to exert 1,000 psi.

The Accident

The immediate events surrounding the destruction of Chernobyl make sense only if it is appreciated that the RBMK was designed to run at virtually full capacity for a year, whereupon it would be shut down for maintenance. Thus, the reactor is designed to face its worst self only when fueled for the first time and twice a year after that, as it is taken out of and put back into service.

At the first fuel loading, problems arise from the fact that "the large enriched uranium fuel load creates many critical masses in the core," as an NRC report puts it. "The control rod system alone is not sufficient to hold the core subcritical for the initial fuel loading. . . . [Therefore,] one supplemental absorber rod is loaded for every six uranium-fueled channels."

When the reactor comes out of operation for annual maintenance and again when it is restarted, it passes through the vulnerable low-power zone in which the positive-void factor is most dangerous. The situation would be particularly risky at shutdown, when the positive-feedback mechanism is even more potent because of high fuel burn-up.

April 25 was the eve of this annual maintenance period. As the crew took the reactor down, they were preparing to test whether residual flywheel energy in the turbines could provide temporary electrical power to control the plant if the reactor lost outside power. Evidently, because of an exceptionally good operating record, the crew members were cocky. And apparently because this test could be performed only during the annual shutdown, they were deter-

PHOTOGRAPH: SOVFOTO

If the second explosion was nuclear, it would be deeply misleading to say that Chernobyl did not blow up like an atomic bomb.

mined to get it done. They therefore took a large number of reckless measures that disabled safety systems and put the reactor into its most unstable state.

"The presumption that this was an electro-chemical test with no effect on reactor safety seems to have minimized the attention given to it in safety terms," a report by the International Atomic Energy Agency (IAEA) concluded. "Authority to proceed was given to the station staff without the necessary formal approval by the station safety technology group.... The test could have and should have been conducted in such a way that the reactor tripped [shut down] when the test began."

Instead, when the reactor started to lose power before the operators were ready to begin the test, they disabled safety systems in an effort to keep the reactor operating. When the reactor was on the verge of shutting down spontaneously before the test had been completed, they removed virtually all the control rods, boosting the positive-void coefficient to about 1.5 times its normal value. As a result, the fuel load or some part of it went out of control. In less than a second, the reactor's power went from nearly zero to perhaps 50 to 100 times the plant's maximum rated capacity. Fuel melted and interacted with water and steam, and some fuel probably vaporized. Enough pressure was generated to lift the reactor lid, rupturing all the pressure tubes and control rods.

Descriptions of this initial explosion in the official literature differ significantly in nuance. All refer in some fashion to a steam explosion, but in one way or another they also make clear that a runaway nuclear reaction was the driving force. At least one report seems to suggest that this reaction alone may have sufficed to blow up the reactor building.

Treading cautiously, the NRC report says, "Within the context of a very strong power pulse, the Soviets could visualize an intense fuel/coolant interaction, i.e. a steam explosion."

The IAEA report, based on the evidence and analysis presented by Soviet experts, makes a somewhat more confident assessment: "The continuous reactivity addition by void formation led to a superprompt critical excursion." A superprompt critical excursion is a nuclear reaction that by definition will stop only when the reacting substance blows itself into pieces.

In its report, the Organisation for Economic Co-operation and Development (OECD), which in-

The consensus is that improvements in RBMK reactors will reduce but not eliminate dangers from the "positive-void effect."

cludes most developed nations, calls the event a "reactivity-driven steam explosion." But elsewhere the same report casts doubt on whether a steam explosion took place at all: "The evidence that a steam explosion occurred during the Chernobyl accident is largely circumstantial although it is generally given as an accepted explanation of the damage observed."

The Second Explosion

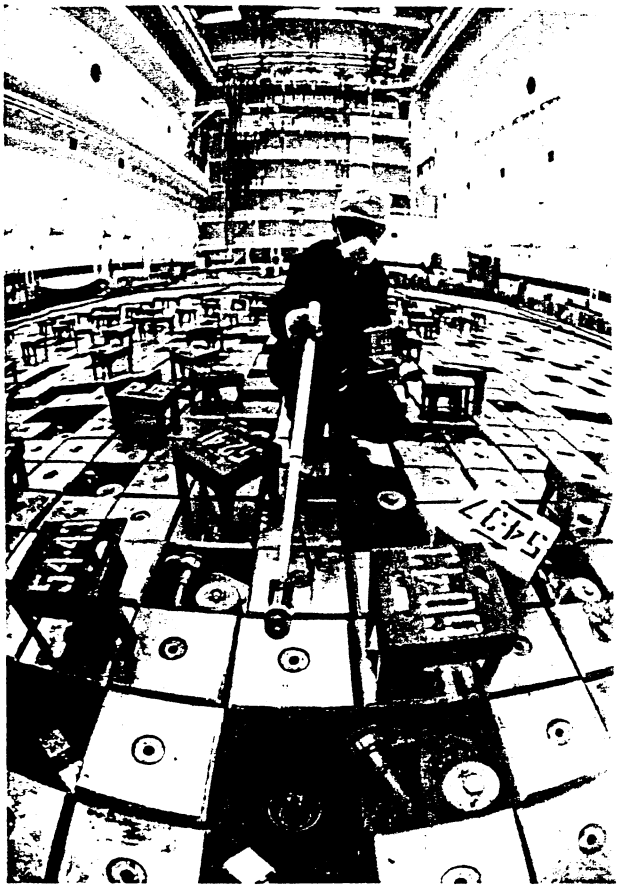
According to eyewitness accounts and evidence presented by the Soviets, a second explosion occurred seconds after the first. Characterizations of this one are even more ambiguous. Some reports steer clear of the second explosion and barely mention it. The IAEA says it is unclear whether it was a second nuclear excursion or a chemical explosion resulting from the reaction of air with hydrogen freed by interactions between zirconium and water. The NRC says the second event, if it occurred, may have followed the plant's destruction and might have been a second nuclear excursion, a hydrogen explosion, or even an echo.

How to describe the second explosion was a sore point that divided NRC and Department of Energy researchers when they tried to collaborate on a joint report. The DOE group was much more cautious about the precipitating causes of the accident but quite certain that the second explosion was a pure nuclear excursion. The group's view was and is that this explosion was much more powerful than the first, and that it was this explosion that completed the destruction of the plant and blew parts of its core into the upper atmosphere.

DOE's position is based on Soviet data and calculations contained in the IAEA report and presented as a graph insert to the report (*see chart on page 49*). These calculations indicate that the second explosion took the reactor to 400 to 500 times its normal maximum power. The figures are predicated on roughly this interpretation: the first explosion caused the core and surrounding structure to disassemble; and the core or some part of it reconfigured itself, formed into a critical mass, and exploded like a bomb.

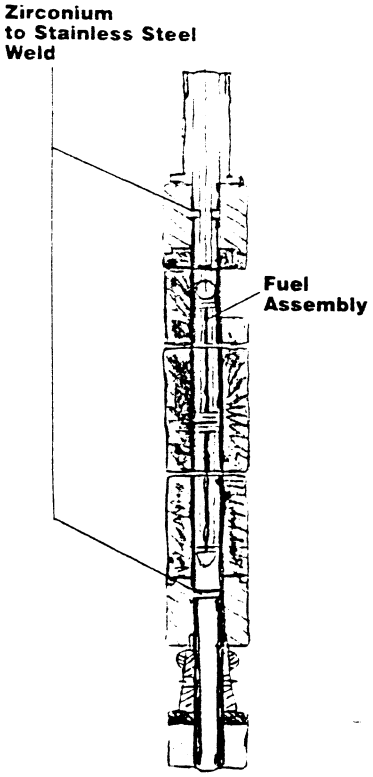
When news of the Chernobyl disaster first reached the West, experts speculated that a graphite phenomenon, which had led to the destruction of a British reactor at Windscale in 1957, was the cause. But

Right: In RBMK reactors, all the control and fuel rods penetrate the top. Surprisingly little pressure can lift this lid, breaking the rods. Here, a worker checks the top of Chernobyl Unit 1 in June 1986.

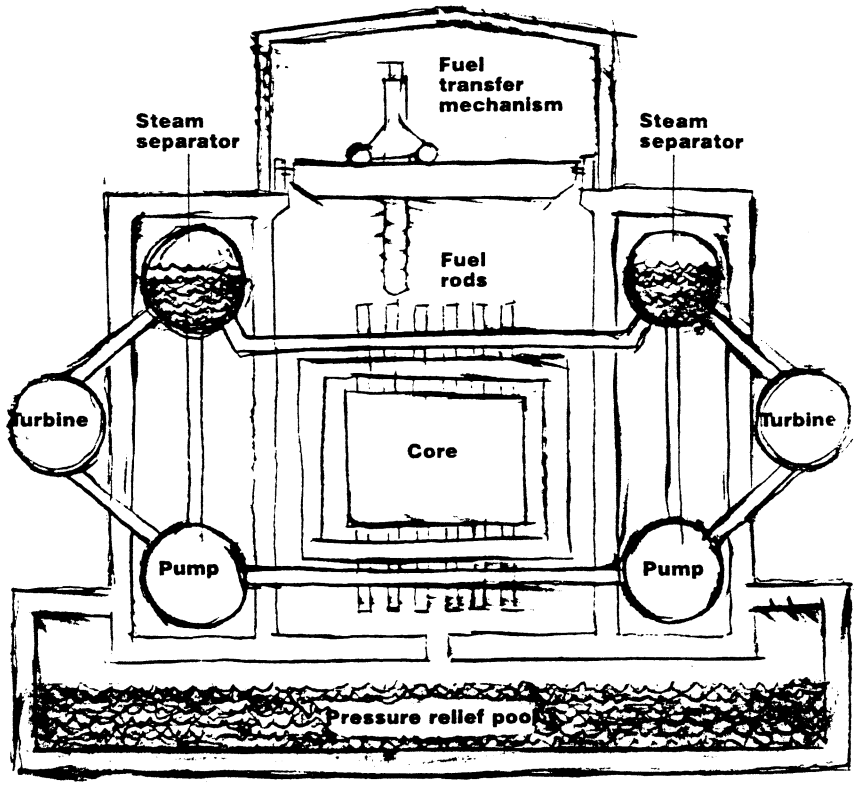


Below left: The design of RBMK fuel rods may be seriously flawed. Abrupt temperature changes could break the sensitive weld that joins an inner zirconium-alloy section to outer steel sections.

Below right: RMBK reactors recirculate water continuously. Pumps on both sides of the central building send water up the fuel rods so the heat turns some of it to steam. Separators then send the water back to the pumps and divert the steam to turbines that generate electricity. In the turbines, the steam recondenses into water, which returns to the pumps.



Fuel channel



Chernobyl-Type Reactor

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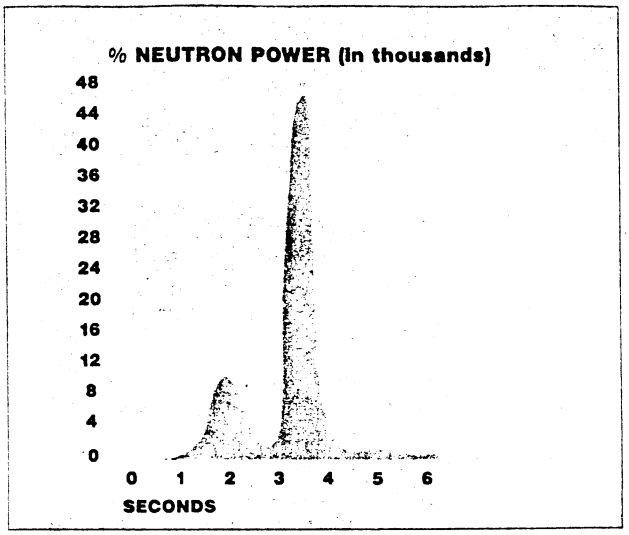
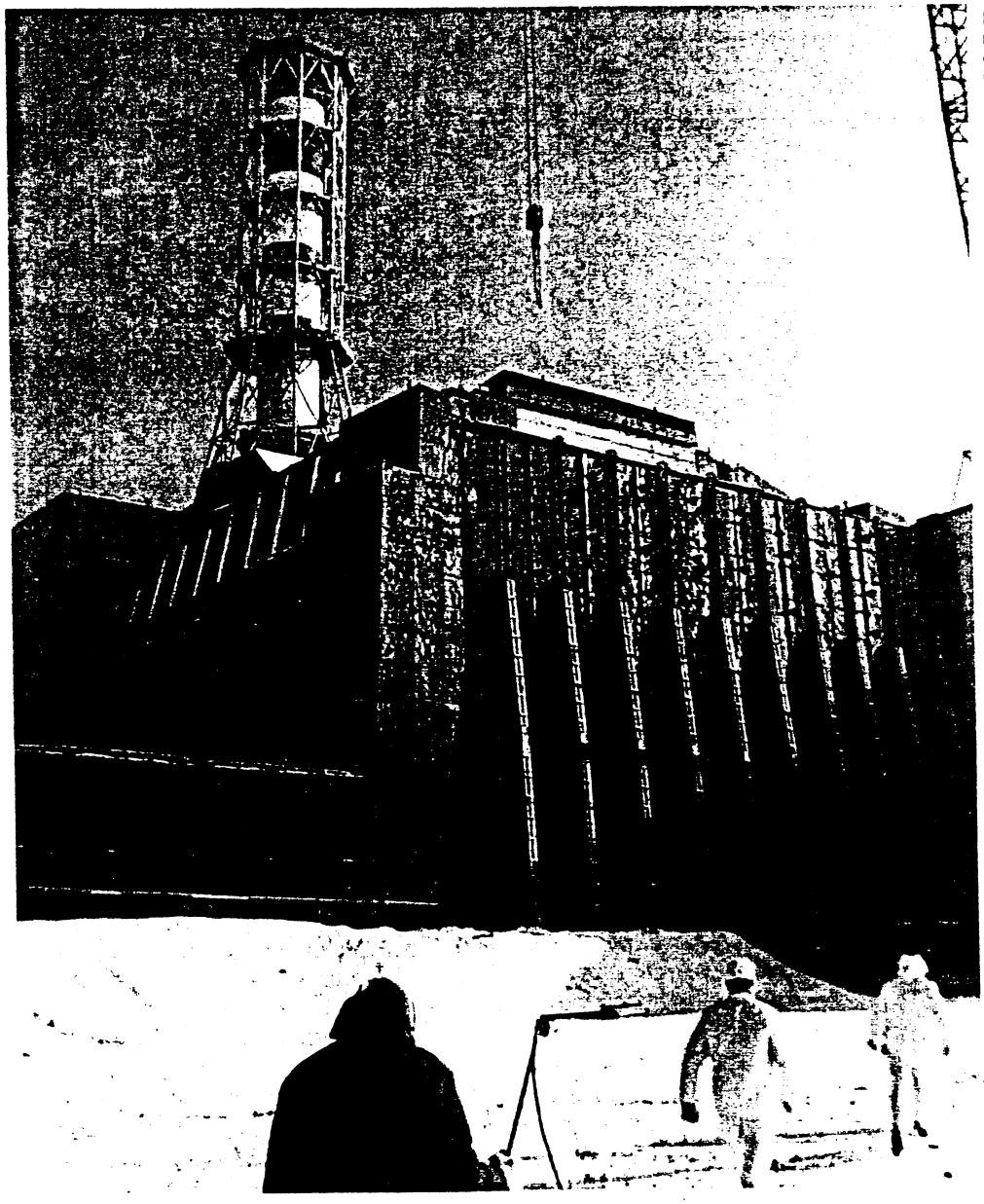
PHOTOGRAPH: SOVFOTO; ILLUSTRATIONS: DAVID SCHUSTER



Left: Soviet calculations of Chernobyl Unit 4's behavior during the accident suggest that two explosions rocked the plant.

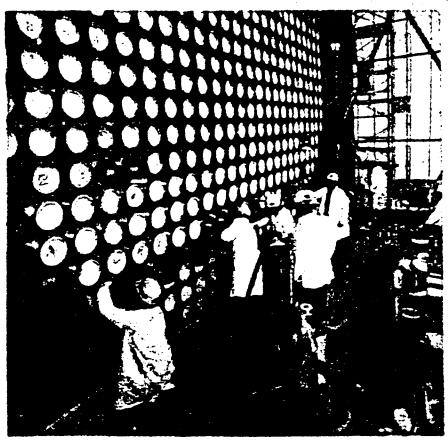


Left: While other RBMK reactors continue to operate in the Soviet Union, Chernobyl Unit 4, contaminated with radiation, will remain buried for centuries in a sarcophagus.

S 000857

PHOTOGRAPH: SOVFOTO

Canada's Post-Chernobyl Challenge



Canada's CANDU plants are North America's closest operating relatives to the reactor that exploded at Chernobyl.

Of the nuclear power plants operating outside the Soviet Union, only Canada's CANDU reactors have a substantial positive-void coefficient—the design feature that rendered the Chernobyl reactor vulnerable to disaster.

Like the RBMK, the CANDU is fueled while operating, but the Canadian reactor is fueled horizontally so the rods don't penetrate the top, and the fueling mechanism is encased, like U.S. reactors, in a formidable containment structure. Moreover, the turbines are linked indirectly rather than directly to the reactor's cooling system, reducing the risk that pump problems could lead to an abrupt loss of water and bring the positive-void effect into play.

Official Canadian reports describe the CANDU's positive-void coefficient as about one-third that of the RBMK's. Specifically, the reports say that loss of coolant in a CANDU could increase reactivity by 7 to 11 mk (a measure of reactivity), compared to 30 mk in the RBMK. This distinction may be academic, since reactors become uncontrollable at about 5 mk.

More important, Ontario Hydro vice-president William Morrison says reactivity increases much more slowly in a CANDU and its control rods are much faster. Canadian licensing requires reactor designers to assume a worst-case accident in which both coolant is lost and the primary shutdown system fails. Accordingly, all but four aging CANDUs have a second shutdown system that rapidly injects a fission poison into the reactor.

The Canadians point out that every reactor, whether or not it has a positive-void coefficient, is vulnerable to sudden changes in reactivity. For example, Morrison says that suddenly ejecting the control rods from a pressurized-water reactor (one type of water-moderated reactor) will speed up the reaction well beyond the point at which it would be uncontrollable. Zig Domaretski, safety chief at the Atomic Energy Board of Canada, says that every time a turbine disengages in another type of water-moderated reactor, reactivity rises about 10 to 12 mk. Dealing with this is straightforward, he says, requiring a shutdown system that reacts in the first half-second and provides 30 mk of damping within a few seconds.

"Every reactor has the potential for large reactivity increases, but only the RBMK did not recognize this adequately," according to Morrison. Domaretski says the RBMK's shutdown system is satisfactory only when the reactor is at full power, but accident analyses seem to have assumed full power—an "almost incredible attitude." — *William Sweet* ■

that explanation soon fell into discredit, and speculation then centered on a hydrogen explosion, the type of event that had threatened to blow up Three Mile Island. For most of the last three years, the standard account has attributed the accident to a steam explosion.

In fact, runaway nuclear reactions were the driving force behind the accident. Experts have shied away from using the term nuclear explosion, but as Richard Wilson of Harvard University has said, "It was a nuclear explosion, there's no doubt, because the ultimate source of energy was nuclear. . . . To ever say it was not a nuclear explosion is just plain wrong."

First, a runaway reaction caused the fuel to melt and expand. Whether or not interactions with steam or water took place, the pressures would have sufficed to lift the lid. Once that happened and all the tubing ruptured, many conceivable catastrophes might have occurred, and for all we know, they all may have. Probably a second nuclear explosion occurred, much more violent than the first runaway reaction, and this nuclear explosion completed the destruction of the plant's physical structure.

Not every expert, to be sure, believes that the second explosion was nuclear. Brookhaven's Kouts, one of the most respected U.S. reactor specialists, thinks the second event was a particularly violent steam explosion caused by the sudden ejection of tiny fuel particles into the water-steam tubing. Other experts passionately reject this notion of a "superheat" steam explosion.

If the second explosion was indeed nuclear, would it be fair to say that the reactor blew up like an atomic bomb? In one sense, it would be deeply misleading to say that it did. While a bomb is designed to make a critical mass explode in microseconds with an energy measured in millions or billions of gigajoules, the Chernobyl reactor exploded thousands of times more slowly with an estimated energy of perhaps 1,000 gigajoules.

But if the second explosion *was* nuclear, it also would be deeply misleading to say that the plant did not blow up like an atomic bomb. In an explosion of that kind, the reactor would go through the same physical steps the core of a bomb traverses. It would turn into a critical mass and begin to react uncontrollably. The fuel would melt and finally vaporize.

Did the fuel definitely vaporize? The official reports sometimes waffle on this question regarding

PHOTOGRAPH: ONTARIO HYDRO

Punctuating concerns over Chernobyl is the suicide of the scientist delegated to preside over the official Soviet review.

the first explosion, but they usually say that parts of the fuel must have become hot enough. If there was indeed a second nuclear explosion that was roughly 10 times more powerful than the first, there is no doubt at all: fuel would have vaporized.

The Soviet Technical Fixes

When the Chernobyl accident occurred, 13 other RBMK reactors were operating in the Soviet Union, "many with fewer safety features than Chernobyl Unit 4 had," an NRC report observed. A number of other RBMKs were under construction, but their status is now uncertain because of spreading antinuclear activism, new concern about seismic dangers in the aftermath of the Armenian earthquake, and—not least—concerns arising from the Chernobyl accident itself. This April, the Soviets abandoned plans to build two new reactors at Chernobyl and announced that they would not expand similar facilities elsewhere.

The Soviets have introduced a number of design modifications to render the RBMKs less vulnerable to the type of accident thought to have destroyed Unit 4. They have slightly increased the enrichment of the fuel, installed stops limiting the extent fuel rods can be removed, and made the control-rod system faster. It is generally believed that operating RBMKs are being retrofitted to these specifications. Experts also suspect that the Soviets may be taking other measures to improve the RBMKs under construction, such as installing more pressure tubes and control rods to reduce the density of the graphite lattice.

The general intent of these measures is to reduce the scope and magnitude of the positive-void effect and enhance the control system's ability to cope with conditions that could lead to a runaway reaction. The consensus among Western experts is that the steps will reduce but not entirely eliminate the positive-void factor, and that they improve control of the rods.

But experts stress that there are strict inherent limits on the extent to which the RBMK can be made safer. And they express considerable concern that the corrective measures do not address all the severe accident possibilities that Chernobyl brought to light. Finally, some experts believe that the corrective measures may even aggravate some risks.

For example, the OECD report points out that richer fuel increases the instability that exists when the fuel is first loaded into the reactor. The speedier control rods could cause still other serious problems. Each RBMK pressure tube has a sensitive weld toward the top and bottom, which joins an inner zirconium-alloy section to outer steel sections (*see the diagram on page 48*). The Soviets were well aware that these welds were vulnerable to sudden temperature changes, according to Kouts. He believes one reason the RBMK had a slow control system was to avoid subjecting the welds to excessive thermal shock.

If control rods were inserted suddenly, causing the temperature of the reactor to change abruptly, there is a serious danger that several of the tubes would rupture. A dozen or so breaks would easily suffice to lift the lid of the reactor, break the tubes and control mechanisms, and precipitate the chain of events that occurred the night of April 26.

In fact, Wilson and some other experts believe that a multiple tube rupture might have actually caused the Chernobyl accident. In this scenario, the accident may have resulted when the operators subjected the reactor to thermal shocks as they sought to stabilize it at a low power level. Whether or not this actually happened, it could have happened. Wilson says that he and others have tried to get the Soviets to focus on this scenario, but the Westerners have had little apparent success.

Because so many factors and combinations of factors could have caused or contributed to the catastrophe, Edward Purvis, who led DOE's study team, has criticized those who endorse a specific explanation. "If you're trying to make the RBMKs safe, you can't arbitrarily pick one thing and fix it," Purvis says. "You have to take care of all possible causes."

The NRC's view of the RBMK is not drastically different. Asked how he would rate the vulnerability of the modified RBMK to catastrophic accident, Harold Denton, the former NRC safety chief, said, "We wouldn't license such a reactor here, and we've told them so."

Soviet authorities have tried to blame the Chernobyl accident primarily on the plant's operators, and the top people responsible for running the plant have been tried and convicted of negligence. But years before the accident, British reactor experts are reported to have told their Soviet counterparts that the flawed RBMK design put excessive demands on the plant operators. It is an open question whether

The top of the reactor is relatively defenseless in all the Soviet units built or under construction.

the modified design represents a significant and adequate improvement.

Meltdowns and Explosions

Chernobyl has implications primarily for the RBMK reactor and secondarily for Soviet management of nuclear energy. U.S. reactors, in which water as opposed to graphite moderates the reaction, are not seriously vulnerable to a Chernobyl-style mishap. A fizzling steam explosion could occur in a U.S. reactor if a molten core dropped into a pool of water, but the possibility is remote, and the result would not be the enormously violent nuclear explosion that destroyed Unit 4.

While the Soviet government has made an unprecedented disclosure of sensitive information, and has displayed an extraordinary willingness to take advice from outsiders, reactor experts in the United States and Canada remain worried about the possible recurrence of a catastrophe in an RBMK reactor. These scientists are unhappy about the reluctance of the Soviets to perform the very detailed accident analyses that came into fashion here after Three Mile Island. And despite the openness to Western criticisms, government censors still routinely excise Chernobyl-related articles from Western publications circulating in the Soviet Union.

Punctuating the continuing concern over RBMK reactors is the suicide of Valery Legasov, the atomic scientist the Soviets had delegated to preside over the official Chernobyl review. He killed himself on April 27, 1988, the second anniversary of the accident, and official explanations of the death are vague. Reliable private reports indicate he had a terminal disease and planned his death in collaboration with a physician, but it is possible that Legasov, by choosing the day he did, also wished to make a public statement with his death.

Certainly it gives weight to his posthumous warnings about the threats that Chernobyl still poses. A month after the suicide, *Pravda* published parts of memoirs that Legasov had dictated into a recorder during the two years after the accident. *Pravda* headlined the excerpts, "It is my duty to speak out."

According to the extracts, Legasov had been aware of deteriorating trends in the design and management of nuclear power plants before the accident, but he had felt powerless to intervene because "professionals in the field did not take kindly to outside interference." The scientist complained that officials had dismissed his calls for rigorous reactor fault analysis and studies of safer reactor types.

While he felt nuclear power plants probably were safer than conventional power plants, Legasov worried about the amount of graphite, zirconium, and water in the RBMK. And he was concerned about the lack of safety systems that would activate independently of operators.

Legasov came to believe that an important underlying cause of the disaster was the absence of individual responsibility for equipment quality. He called the events at Chernobyl the "apotheosis and peak of the economic mismanagement in our country over decades."

Just before his death Legasov told *Pravda*, "The lessons of Chernobyl have still not been analyzed to the end." ■

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Atomic Energy of Canada Limited and Nuclear Safety Analysis Center (Electric Power Research Institute), "Multidimensional Analysis of the Chernobyl Accident," August 1988.

International Nuclear Safety Advisory Group, International Atomic Energy Agency, "Summary Report on the Post-Accident Review Meeting on the Chernobyl Accident," 1986.

Nuclear Energy Agency, Organisation for Economic Cooperation and Development, "Chernobyl and the Safety of Nuclear Reactors in OECD Countries," Paris 1987.

U.S. Department of Energy, "Report of the U.S. Department of Energy's Team Analyses of the Chernobyl-4 Atomic Energy Station Accident Sequence," November 1986.

U.S. Nuclear Regulatory Commission, "Implications of the Accident at Chernobyl for Safety Regulation of Commercial Nuclear Power Plants in the United States," May 1987.

U.S. Nuclear Regulatory Commission, "Report on the Accident at the Chernobyl Nuclear Power Station," December 1987.

Other major reports:

John Ahearne, "Nuclear Power After Chernobyl," *Science*, May 8, 1987.

Harold Denton, "The Causes and Consequences of the Chernobyl Nuclear Accident and Implications for the Regulation of U.S. Nuclear Power Plants," *Annals of Nuclear Energy*, 1987.

Christopher Flavin, "Reassessing Nuclear Power: The Fallout from Chernobyl," Worldwatch Institute, March 1987.

Edward Purvis and Bruce Spencer, "Chernobyl-4 Accident Analysis," European Nuclear Society and American Nuclear Society, Topical Meeting on Probabilistic Risk Assessment, August/September 1987.

Richard Wilson, "A Visit to Chernobyl," *Science*, June 26, 1987.

Edwin Zebroski, "The Nuclear Accident at Chernobyl," *Yearbook of Science and Technology*, McGraw-Hill, 1988.

Edwin Zebroski, "Sources of Common-Cause Failures in Decision Making in Man-Made Disasters," *Advances in Risk Analysis* (vol. 7), Plenum, 1989.

DECLARATION OF WILLIAM SWEET

William Sweet deposes and says:

(1) My name is William Sweet. My home address is 469 Marlborough Road, Brooklyn, New York 11226.

(2) I currently work at IEEE Spectrum magazine as Senior News Editor. My business address is 3 Park Avenue, 17th Floor, New York, N.Y. 10016.

(3) I have been a journalist (writer/editor) for 25 years. My first jobs were with a financial newsletter in Manhattan, then Congressional Quarterly Inc. in Washington, D.C. I began working at Physics Today as an associate editor in March 1984 and worked at the magazine until 1992 or 1993. My immediate supervisor was Gloria Lubkin, who was News Editor and then Editor-in-Chief.

(4) Upon being hired, I asked the Editor in Chief, Hal Davis, whether I could pursue freelance projects while I worked at Physics Today. Davis said that that would be fine as long as I did not attach Physics Today or the American Institute of Physics to anything I wrote. I also confirmed with Human Resources, that I would have unlimited long distance telephone privileges. At the time, Theresa Braun was the director of Human Resources.

(5) Physics Today had an exact way of defining peoples' jobs. If you did your job, then you were left alone. Editors were expected to edit two articles a month. Writers were expected to write four pages per month, or one page per week. In theory, if I wrote four pages in one week, I could then do whatever I wanted for the remainder of the month.

(6) While at Physics Today, I worked on a number of different freelance projects while at work, including regular articles for The Bulletin of Atomic Scientists,

which many of my colleagues saw. I worked on these projects openly, often discussing the different projects with co-workers, using my office computer and the magazine's library for research.

(7) In 1989, I wrote a controversial article which was published in MIT's Technology Review, in which I suggested that the Chernobyl accident was actually a nuclear explosion. After it was published, a number of articles were written in response and I received a fair amount of publicity. Soon after, AIP's clipping service collected many articles commenting on my Chernobyl piece. I know this because my colleague, Barbara Levi, who had a similar but slightly more senior job, called me into her office, gave me a large stack of clippings about my Chernobyl article, and said, "this is what happens when you use the term nuclear explosion." I noted that, even though the Chernobyl article itself did not identify me as an editor of Physics Today, or as an employee of AIP, many of the articles did so. No one from management warned, reprimanded, or disciplined me in any way, and I was never told to refrain from writing controversial pieces. I continued my freelance work throughout my time at Physics Today.

(8) In my experience , freelancing on an employer's time (and using an employer's resources) is and was ubiquitous in the newspaper and periodical industry. It generally is taken for granted that reasonably ambitious people will use company time, long-distance telephone privileges, research facilities, and the company's computers, to further their own writing careers. The employer benefits from such a practice as these writers will give the magazine the right of first refusal for publication. Freelance work also can increase a staff writer's stature and lead to valuable spin-off projects for one's employer. -Indeed, my MIT article about Chernobyl led to a tip that resulted in my writing a major investigative piece on a closely related subject, which Physics Today published.

VERIFICATION

I hereby verify under penalty of perjury pursuant to 28 U.S.C. § 1746(2) that the statements contained therein are true and correct to the best of my knowledge, information and belief.

Executed on March 15, 2001.

William Sweet

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AUGUST 17, 1984 (ISSN 0000-0019) VOL. 226 NO. 7 $2.00

Publishers Weekly

The Journal of the Book Industry

SCI-TECH BOOKS AIMING AT A WIDER AUDIENCE

REPORT ON CANADIAN BOOKSELLERS CONVENTION

THE GALLUP SURVEY

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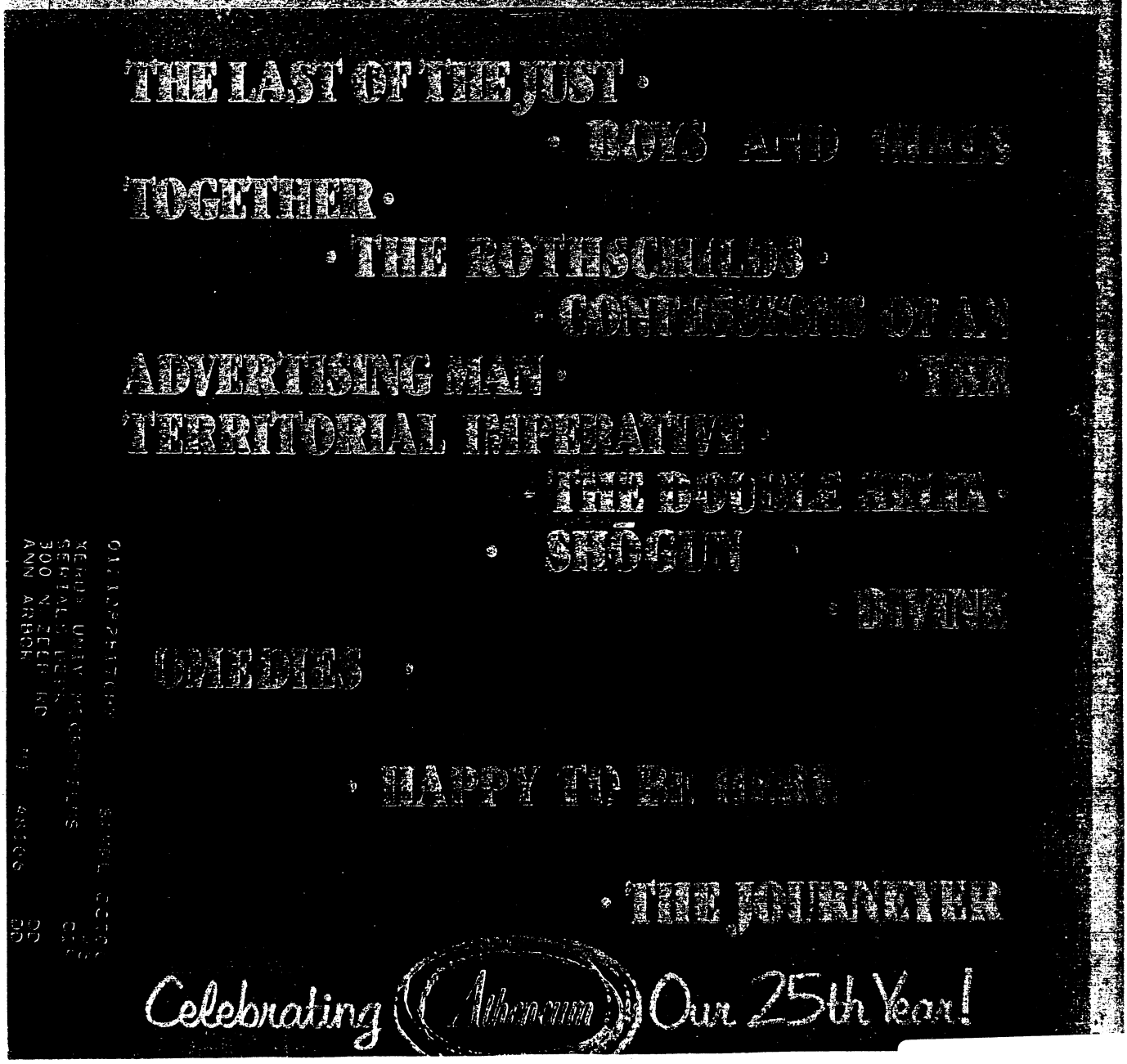

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A *PW* Special Report

Science Books For General Readers

A new breed of writers with new attitudes has broadened the potential audience

By Alexander Hellemans

Besides the great mathematicians, theoreticians, discoverers and inventors, the history of science is rich in a special group of people: the authors of great science books. Most of them do not have theories or theorems to their name, but have been, and are, skillful writers who could attract large numbers of readers by explaining scientific matters in an approachable way.

Some have been simultaneously great scientific thinkers *and* wonderful writers. Darwin's book, *On the Origin of Species*, for instance, was of primary importance scientifically, but was also perfectly accessible to the educated layperson. The biologist T. H. Huxley, known for his debate with Bishop Wilberforce on Darwin's theories, contributed enormously to the understanding of science by his popular writings. In this century, several distinguished scientists have devoted themselves to bringing science to the public: Robert Bell, Arthur Stanley Eddington and James Jeans among the astronomers, and Peter Medawar, George Gaylord Simpson, Julian Huxley and René Dubos among the biologists—all of them great science writers. And many essayists, philosophers and novelists have tried their hand, often successfully, at science writing: H. G. Wells, Bertrand Russell, Arthur Koestler, John McPhee and Lewis Thomas are names that spring to mind immediately.

But all this notwithstanding, scientific books for a general audience have always occupied a somewhat ambiguous place in publishing. Such books, termed (usually by academics) "scientific popularizations," or worse, "scientific vulgarizations," have often been considered minor products by both scientific and humanist intellectuals.

In fact, scientists writing for a general public often experience disapproval from their colleagues. Margaret Mead's difficulty in finding acceptance of her ideas among her peers after the publication of her popular *Coming of Age in Samoa* is a well-known example. Rae Goodell, in her book *The Visible Scientists*, relates that Mead once told her that her colleagues, encountering her at meetings, would say things like: "Oh, my wife is interested in your articles; she reads them at the hairdresser."

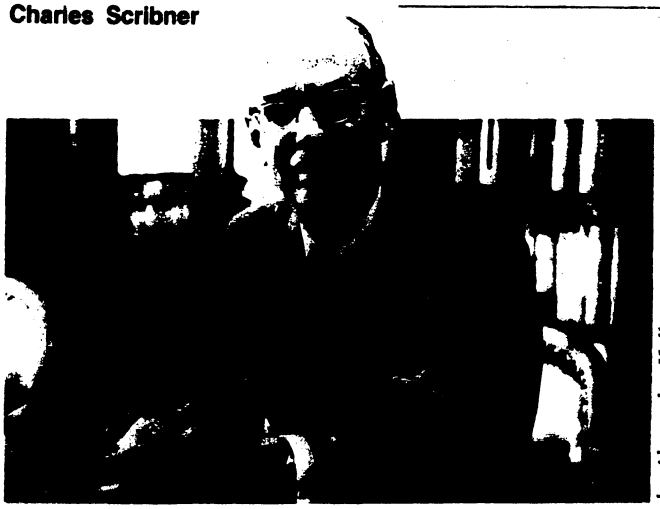
There is no doubt that writing for a general public can interfere with a scientific career. Robert Jastrow, who teaches science at Dartmouth and is author of *The Enchanted Loom: The Mind in the Universe*, among many other books, finds that "it is a problem you have if you are an assistant professor trying to get tenure." Notes Stephen Jay Gould, author of *Ever Since Darwin: Reflections on Natural History* and *The Mismeasure of Man*, "It is a cross that everybody who writes for the public has to bear, but I don't think it is much more than jealousy." Allan Lightman, author of *Time Travel* and *Papa Joe's Pipe*, is optimistic at this point: "At the moment, a whiff of illegitimacy clings to scientists turned writers. I believe that as more respectable scientists, such as Stephen Gould, Carl Sagan, Steven Weinberg and Freeman Dyson, turn their hand to writing, such activities may become more accepted in the scientific community as useful ways for scientists to spend part of their time."

On the other hand, there was, and probably still is, a cultural bias against science on the part of a large segment of the reading public. The late C. P. Snow, in his famous 1959 Reid Lecture on the "two cultures" recalled how the distinguished Cambridge mathematician G. H. Hardy remarked to him in the 1930s: "Have you noticed how the word 'intellectual' is used nowadays? There seems to be a new definition, which certainly doesn't include Rutherford or Eddington or Dirac or Adrian or me. It does seem rather odd, don't you know?"

Most of the publishers and science writers talked to recently agreed that there has been an increase of inter-

"I am surprised that so much claptrap in pseudoscientific writing is accepted. You would think this would fall by the wayside."

Charles Scribner



by Alexander Hellemans

Hellemans is an editor at Physics Today, *the publication of the American Association of Physicists, and an occasional contributor to* PW.

est in science among the general public during the last few years. The science programs on television have been instrumental in heightening this interest. "There has clearly been a quantum jump in science," says Paul Wehn, marketing manager at Cambridge University Press. "This is reflected in the appearance of all those new science magazines." Jastrow sees another factor contributing to this interest: "Science is connected with prosperity in the eyes of today's young entrepreneurs, who associate productivity with high technology and invention."

Although the public is now more critical about scientific matters than in the past, the period of disenchantment with science of the late '60s and the '70s seems to have abated. It is certain that one of the consequences of the much-publicized discussions about the possible dangers of gene splicing made the public more interested in the new field of molecular biology. More recently, the debates around creationism have inspired a series of books on Darwinism and evolution.

But not only scientific controversies have kept science in the attention of a general public. An impressive series of scientific discoveries in recent decades resulted in books that reached a wider audience. One of the best known examples is *The Double Helix* by James Watson, an account of the discovery of the structure of DNA, the molecules that carry the genetic information in every living being. According to Edwin Barber, v-p at Norton, Watson's book "was a fortunate and shrewd marriage of science and personality; it sort of demystified science." Watson's book was also the prototype of a new kind of science writing, showing the human side of scientific research. "Books like *The Soul of a New Machine* by Tracy Kidder were almost substitutes for biography," says Patrick Filley, v-p and editorial director at Doubleday.

Probably one of the reasons for the currently more sympathetic attitude of the public towards science is a subtle philosophical shift among science writers themselves. "Science writing has generally greatly improved in quality and in philosophical awareness," says Jacques Barzun, literary critic and author of a quite negative study of the scientific establishment, *Science, the Glorious Entertainment*, published in 1963. "Science writing is not so brash and full of self-consciousness and untenable claims as it used to be," adds Barzun. "Writers about science are now expressing both the tentative character of science and the role of interest and perspective in scientific work itself. The old absolutism, what science says is thus and so, this aspect has been broken down—or at least attenuated."

This change in science writing is, according to Barzun, the result of a "humanization" of science. "My writing has been influenced as much by nonscientific as by scientific writing," says Allan Lightman. "My favorite form is the essay, and the greatest American essayist, in my opinion, is E. B. White." "There is a whole generation of young scientists who don't see barriers between the two cultures," says Edwin Barber. "They are in their 20s and 30s and are going to be interested in writing for the general public."

"Science, in my view, is a part of our culture, in the humanist sense of the word 'culture,' that part of our heritage on which Western man builds an identity," says Robert March, a high-energy physicist at Wisconsin University and author of *Physics for Poets*. "One of the worst events in the history of science was when the phrase 'natural philosophy,' to refer to science, was dropped," said Charles Scribner Jr. "If you look at the great steps in the development of science—the theory of quanta, relativity, the Grand Unified Theories—you see that the individuals who overcame difficulties in these areas acted in an imaginative, humanistic and philosophical spirit. Einstein's critique of the idea of simultaneity was a philosophical argument."

As an example for his view of science as part of the humanities, Scribner recounts how, while reading Proust recently, he discovered that *Recherche du Temps Perdu* is filled with science. "Proust used magnetism or supersaturation as the basis of striking metaphor."

New Directions

Not only have scientists' own interests altered, but the ways in which they address the public have changed, too: "I see a growing tendency not to write down to the reader," remarks Scribner. Barzun notes that some 20 years ago "it was difficult to find a good work of popularization in science that was not talking down to babies." The science writers agree: "I don't see at all why writing for the general public should debase the richness of any idea," observes Stephen Gould.

Darwin's great work, published in 1859, was perfectly accessible to the lay reader of the time. But today many new scientific theories are perforce often out of the reach of the layperson, and many fear that the gap between scientific knowledge and what the public can follow is widening every day. Robert March, however, disagrees with the view that the complexity of science is increasing: "What has happened is that the *specialization* of science is increasing. There are more scientists, and they are inquring into more details. But the general principles on which science works, the ideas that are currently at the forefront of science, are in many ways simplified. In my own area of research, particle physics, I think you can now explain it at a level of fundamental theory to the layman. You couldn't do this 15 years ago." Allan Lightman is of the same opinion: "I believe there is no concept in science too difficult to convey to the public. A firm grasp of the subject allows the writer to simplify without giving up accuracy, honesty or respect for the reader." And Lightman adds: "In this regard, a science writer who is not also a scientist is at a disadvantage."

The Science Writer's Craft

Both scientists and professional science writers have their own problems in dealing with writing for a general public. March believes that science books will command a larger portion of the market if "scientists learn to write better and professional writers improve their knowledge of science. I am very much encouraged by the science journalism I see these days," he adds. "Our science reporters are improving in quality, and when they get a vehicle like a book, they do a marvelous job."

"Science is connected with prosperity in the eyes of today's young entrepreneurs."

Robert Jastrow

Scientists, according to Jastrow, have to perfect their craft "to eliminate the jargon, the unexpressed knowledge and assumptions that lie in the background." Jake Goldberg, an editor at Crown, says that when evaluating a manuscript, he pretends "to be a layman, even if I know a little more about the subject." Charles Scribner, who is convinced that the best science writers are found among working scientists, quotes the 19th century American thermodynamicist Josiah Gibbs to describe the skill of the science writer: "The purpose of theoretical research in every field of knowledge is to find the point of view from which the subject appears in its greatest simplicity." And Scribner continues: "It is to find the simplest way of looking at things, and a good science writer not only has to do that as a scientist, but also as a writer."

Edwin Barber: "I am really thrilled when I find an academic who can write on matters in his own field. I am generally much more successful with those books than I am dealing with a science journalist, not because the journalist doesn't know, or doesn't write better, but there is a sort of immediacy that you get from the person who has done the research or teaches in that field."

Challenges

Finding good science writers, especially among working researchers, is indeed one of the problems publishers are faced with. "Usually, it is not the working scientist who approaches us with proposals; it is the science writer," notes Goldberg.

"I don't see at all why writing for the general public should debase the richness of any idea."

Stephen Jay Gould

The strongest constraint on the publishing of science books is still the limited size of the market, as compared to, for example, the fiction market. "From our point of view it is very difficult to sell science books," said Goldberg. "The quantities of books that we import or print are fairly small, 15,000 to 20,000. It is rather difficult to get sales higher than that on most of these books. It is wonderful if you can sell 50,000 copies of a book. Of course, we are not talking of Sagan or Asimov, you understand, where the name sells the book."

The relatively small market imposes limitations on the staff of publishing houses. It is very difficult, for example, to have specialist editors on staff, said Patrick Filley: "First, you can't afford them; second, you can't afford the luxury of just doing science books." Consequently, judging proposals can also offer problems to the publisher. "Everyone tries to measure the veracity of a proposal," comments Filley. "Usually, when we are trying to put something out as 'fact,' we try to have it sponsored by an editor who has unearthed some adequate scientific backing for it."

University presses are in a better position in this regard. Because they have science editors on staff and have contracts with important scientists on their own campuses, they have the opportunity to publish with much more confidence in the validity of their titles. In fact, Cambridge University Press has recently set up a new division for this purpose. "We are reaching the general market," said Paul Wehn, "and we expect that this market will improve for us as we produce more books of this kind."

Most publishers try to keep away from unsound manuscripts. Jake Goldberg sees "the proliferation of the pseudoscientific books, such as Von Daniken or Velikowsky, as a danger. Too many people take these books too seriously because they don't have the scientific background."

"Pseudoscience is the superstition of the scientific age," agrees Scribner, "and I am surprised that so much claptrap in pseudoscientific writing is accepted. You would think that this would fall by the wayside in an age where there is so much scientific understanding, but it doesn't."

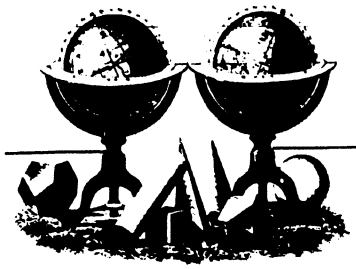
Besides unsound manuscripts, there are often just too many books written on the same topic. Certain "fads" that go as fast as they come can cause problems. "There is a glut, for example, in astronomy books right now," says Goldberg. "We have a number of them that we are going to publish, but we will be looking very carefully at new proposals."

"Science writing is not so brash and full of self-consciousness and untenable claims as it used to be."

Jacques Barzun

Unlike scientific and technical books written for professionals, popular science books have the advantage of reaching many more bookstores because they are usually sold as trade books rather than academic titles. But, most importantly, the salespeople can handle them better: "Popular science books are written at the level of the educated layman," says Jack Feyock, manager of bookstores at McGraw-Hill. "Consequently, they are also written on the level of the salespeople."

"The effect of the Walden and Dalton chains is very positive," says Filley. "They give an increasing amount of space to these books, and the buyers in the science area have been pretty good." Most publishers also consider book clubs, particularly the specialist ones, as important outlets. And there is no doubt that some science books now have increasing sales potential. "There have been a couple of books that have hit the bestseller list," says Filley. "With a lot of support—in either rights, television or promotion—I don't think there is any longer a barrier for scientific books." □



Sci-Tech Books for Fall

Selected Offerings from Publishers

Addison-Wesley

The Addison-Wesley Photo-Atlas of Nursing Procedures by Pamela L. Swearington (July, $39.50). An atlas containing over 1500 clinical photographs and the descriptions of more than 300 essential procedures.

The Helping Group: Therapeutic Principles and Issues by Martin Lakin (Sept., $19.95t). Covers theory and research as well as practical issues surrounding self-help groups.

Basic Books

The New Evolutionary Timetable: Fossils, Genes, and the Origin of Species by Steven M. Stanley (Sept., paper $8.95). Shows how new evidence is changing our understanding of evolution.

The Creation of Matter: The Universe from Beginning to End by Harald Fritzsch, translated by Jean Steinberg (Oct., $19.95, illus.). An account of the birth, evolution and probable end of the universe.

Asimov's New Guide to Science (rev. ed.) by Isaac Asimov (Nov., $29.95, illus.). An introduction to several fields of science, including physics, biology, computer science and astronomy.

Mind, Brain, Body: Toward a Convergence of Psychoanalysis and Neurobiology by Morton Reiser (Nov., $19.95). An exploration of the interface among the three realms.

Individual and Group Therapy: Combining Psychoanalytic Treatments by Judith Caligor, Nina Fieldsteel and Albert J. Brok (Nov., $18.95). A comprehensive account of a combined model of psychoanalytically oriented individual and group therapy.

Psychotherapy in a New Key: A Guide to Time-Limited Dynamic Psychotherapy by Hans H. Strupp and Jeffrey I. Binder (Nov., $21.95). Offers an integrated model of therapy and is aimed at the mental health professional.

Birkhauser Boston

Imagery in Scientific Thought: Creating 20th-Century Physics by Arthur I. Miller (Oct., $30). Explores the historical, philosophical and congnitive psychological aspects of the development of science in the 19th and 20th centuries.

The Ancient Tradition of Geometric Problems by Wilbur Knorr (Oct., $40). A comprehensive survey of the ancient Greek geometric tradition.

Brunner/Mazel

On Diagnosis: A Systemic Approach by Michael L. Glenn, M.D. (Aug., $20). Presents a new way of approaching medical diagnosis.

The Art of Art Theraphy by Judith A. Rubin (Sept., $25). A guide for art therapists and other mental health professionals on how to think about art therapy

Cambridge University Press

Our Green and Living World: The Wisdom to Save It by E. S. Ayensu, V. H. Heywood, G. Lucas, and R. De Filipps (Sept., $24.95t, illus.). An illustrated journey thorugh the deserts, oceans, forests and wetlands of the world.

Secrets of the Sun by Ronald Giovanelli (Sept., $19.95, illus.). Describes for the lay reader and amateur astronomer all the activities which occur on or in the sun.

Spacelab: Science in Earth Orbit by David Shapland and Michael Rycroft (Sept., $19.95, illus.). An account of the development, launch, goals and scientific achievements of Spacelab.

Colors of the Stars by David Malin and Paul Murdin (Sept., $27.50, illus.). An outline of the physical principles at the basis of the colors of stars.

The Story of the Earth by Peter Cattermole and Patrick Moore (Sept., $24.95, illus.). Recounts the history of our planet from its formation to the emergence of man.

The Machine at the Bedside: Strategies for Using Technology in Patient Care edited by S. J. Reiser and M. Anbar (Sept., $39.50; paper $14.95). A multidisciplinary approach for practitioners, educators, policymakers and the public.

Columbia University Press

The Voyages of Columbia: The First True Spaceship by Richard Lewis (Oct., $24.95 illus.). The whole story of the Space Shuttle program, from its design and planning to the first five operational missions of the spaceship.

In Praise of Difference: Genetics and Human Affairs by Albert Jacquard, translated by Margaret M. Moriarty (Oct., $20 illus.). Discusses genetic diversity and its implications for the human race.

Archeological Explanation: The Scientific Method in Archeology by P. J. Watson, S. A. Le Blanc and C. L. Redman (Oct., $26.50). An account of archeological research design, data recovery and interpretation.

Doubleday

Endorphins: New Waves in Brain Chemistry by Joel Davis (July, $15.95). An account of medical research with one of the most powerful nonaddictive opiates.

GAIA: An Atlas of Planet Management edited by Norman Myers (Nov., $29.95; paper $17.95, illus.). An atlas of the earth's resources, its peoples, its global ecology and the environmental crisis it is facing.

The Science Almanac 1985/1986 Edition edited by Bryan Bunch (Dec., $19.95; paper $12.95). A reference in almanac form featuring the most recent events, discoveries and awards in a wide range of scientific fields.

Elsevier Science Publishing

Geology in Engineering by R. Bowen (July, $45t). Explains in detail the aspects of geology indispensable to the engineer.

The Diuretic Manual edited by J. B. Puschett, M.D. (Aug., $45t). A physician's source for trerapeutic suggestions for various diseases and for diuretic administration.

Multiple Perspectives for Decision Making: Bridging the Gap Between Analysis and Action by Harold A. Linstone (Aug., $29.50). The how's and why's of decision making based on case studies from government, the military and business.

Nitrous Oxide by E. Eger, M.D. (Sept., $40t). Presents new information about possible toxic effects of these widely used anesthetic.

Handbook of Systems Analysis: Overview of Uses, Procedures, Applications, and Practice, edited by Hugh J. Miser and Edward S. Quade (Oct., $39t). Describes the systems analysis process from initial acknowledgement of a problem to the implementation of findings and the assessment of results.

Engineering Geology by Perry Rahn (Nov., $45t). A comprehensive text taking an environmental approach for students and professionals.

Handbook of Mathematical Economics, Vol. 3, edited by Kenneth J. Arrow and Mi-

chael D. Intriligator (Nov., $50t). Surveys the state of the art of mathematical economics.

W. H. Freeman

Fossils and the Theory of Life by George Gaylord Simpson (Aug., $27.95, illus.). A survey of the history of life over three and a half billion years. A Scientific American Book.

The Science of Musical Sound by John R. Pierce (Aug., $27.95, illus.). A discussion of acoustics and computer-generated music for the nonspecialist. A Scientific American Book.

The Solar System by Roman Smoluchowski (Aug., $27.95, illus.). An account of the formation and evolution of the sun and the planetary system. A Scientific American Book.

From Falling Bodies to Radio Waves: Classical Physicists and Their Discoveries by Emilio Segré (Aug., $24.95; paper $13.95, illus.). An exploration of early physics and physicists.

A Guided Tour of the Living Cell by Christian de Duve (Oct., 2 vols., $55.95t, illus.). An examination of the cell, its organelles and the nucleus. A Scientific American Book.

The Free Press (Macmillan)

Child Sexual Abuse: New Theory and Research by David Finkelnor (Oct., $22.50). An overview of the theoretical aspects and research about sexual abuse.

The Clinical Guide to Child Psychiatry edited by D. Shaffer, A. Ehrhardt and L. Greenhill (Nov., $45). A reference for diagnosis and treatment of childhood psychiatric disorders.

The Population of the United States: Historical Trends and Future Projections by Donald Bogue (Nov., $55). Treats the size, growth, age, gender, ethnic and racial composition of the population of the U.S.

Greenwood Press

Understanding the Liver: A History by Thomas S Chen and Peter S. Chen (Oct., $45). An chronologic and thematic exploration of the history of man's thoughts about hepatic structure, function and disorders.

The Guilford Press

Principles and Practice of Stress Management, edited by Robert L. Woolfolk and Paul M. Lehrer (July, $35). Offers a wide range of empirically grounded approaches of both Eastern and Western derivation to stress reduction.

Handbook of Behavioral Medicine edited by W. Doyle Gentry (Aug., $40). An interdisciplinary approach to etiology, pathogenesis and treatment of physical illness.

The Communication of Emotion by Ross Buck (Aug., $27.50). A complete survey of nonverbal communication.

Gulf Publishing Co.

Heat Transfer Pocket Handbook: Calculations and Guidelines for Process and Equipment Design by Nicholas P. Cheremisinoff (July, $24.95, illus.). A reference for process engineers, technicians, students.

Handbook of Drilling Practices by Byron S. Davenport (July, $32.95t, illus.). Covers the entire range of drilling operations.

Conceptual Cost Estimating by John S. Page (July, $49.95). Describes two methods for estimating realistic design and construction costs of chemical, petrochemical plants, refineries and similar industrial facilities.

Hippocrene Books

Flowering Cactus: A Color Guide by G. Rayzer (Oct., $12.95). An illustrated guide for 144 species of cacti.

Holt, Rinehart and Winston

Prime Time: Sexual Health for Men over Fifty by Leslie R. Schover (July, $15.95, illus.). A guide to the elements of sexual health, including physiological and psychological factors.

A Young Man's Guide to Sex by Jay Gale (July, $14.95, illus.). Includes the coverage of contraception, sexually transmitted diseases, learning and communication.

Laugh with Health by Manfred Urs Koch (Aug., paper, $10.95, illus.). A complete guide to health and diet.

How to Capitalize on the Video Revolution by Charlene Canape (Oct., $16.95). Contains information on how to set up a video business, buy equipment, and market, sell and protect the products.

The Inner Source: Exploring Hypnosis with Dr. Herbert Spiegel by Donald S. Connery (Nov., paper $7.95). An exploration of the limitless opportunities for healing and personal fulfillment by hypnosis.

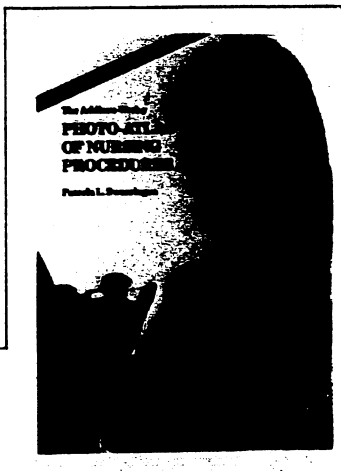
Houghton Mifflin

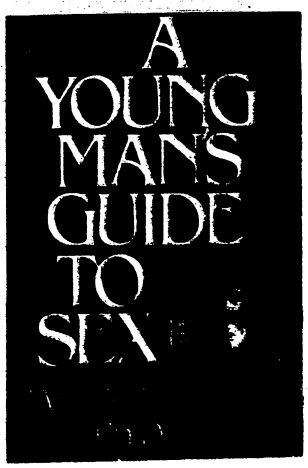
The Fourth Dimension: Toward a Geometry of Higher Reality by Rudy Rucker (Sept., $17.95, illus.). Explores the metaphysical areas of modern physics.

The Amazing Brain by Robert Ornstein and Richard F. Thompson (Oct., $15.95, illus.). A look at the architecture of the brain.

Indiana University Press

The Birds of Indiana by Russell E. Mumford and Charles E. Keller (Oct., $49.95, illus.). A





Clockwise from top: Photo-Atlas of Nursing Procedures *(Addison-Wesley);* A Young Man's Guide to Sex *(Holt, Rinehart and Winston);* Colours of the Stars *(Cambridge U. Press)*

detailed survey of birdlife in Indiana, with oil paintings of the 165 species by William Zimmerman.

Routine Complications: Troubles with Talk Between Doctors and Patients by Candace West (Nov., $27.50). A study of constraints on talk between doctors and patients, using conversation analysis.

Iowa State University Press

Diseases of Poultry (8th ed.) edited by M. S. Hofstad (Sept., $77.95). Encyclopedic information on poultry diseases.

Physiology of Crop Plants by F. P. Gardner, R. B. Pearce and R. L. Mitchell (Sept., $20t). A complete description of growth processes in plants.

An Introduction to Clinical Laboratory Animal Medicine by Donald D. Holmes (Oct., paper $12.95t). A practical guide for veterinarians and an introductory text for veterinary students.

Keats Publishing

The Nutrition Desk Reference Manual by Robert Garrison, Jr. (Dec. $25.). Complete information on all nutrients, their functions and therapeutic applications.

1984: The Yearbook of Nutritional Medicine edited by Jeffrey Bland (Dec., $39). Experts give their views on progress in nutrition and preventive medicine.

Lifetime Learning Publications

Analysis of Messy Data, Volume 1: Designed Experiments by George Milliken and Dallas E. Johnson (July, $45). Presents statistical methods and techniques to effectively analyze nonstandard or messy data sets.

Project Management for Engineers by Milton D. Rosenau, Jr. (Aug., $25t, illus.). Includes a discussion of defining, planning, leading, monitoring and completion of projects.

Industrial Toxicology: Safety and Health Applications in the Workplace edited by James L. Burson and Phillip L. Williams (Oct., $41.50t, illus.). Stresses toxicological principles as related to the manufacture, storage, use and disposal of industrial materials.

Digital Transmission Systems by David R. Smith (Dec., $44t, illus.). A primary text for communication engineers and engineering designers.

McGraw-Hill

McGraw-Hill Dictionary of Engineering edited by Sybil P. Parker (Sept., $32.50). A compilation of over 16,000 terms and definitions in all the engineering disciplines.

McGraw-Hill Dictionary of Chemistry edited by Sybil P. Parker (Sept., $32.50). A compilation of 9300 terms and definitions in theoretical and applied chemistry.

Macmillan

Magic Bullets by Grant Fjermedal (Oct., $15.95). Describes research in the use of radioactive monoclonal and polyclonal antibodies for the treatment of cancer.

Star*Wave: Mind, Consciousness, and Quantum Physics by Fred Alan Wolf (Nov., $19.95). Gives an original interpretation of how today's physics can explain the working of the human mind.

Methuen

Mineral Resources by John A. Wolfe (July, $31; paper $16.95). A comprehensive look at the minerals industry and an overview of the histories, occurrences, uses and technical details of the 21 metals and the 18 nonmetals of greatest economic importance. A Chapman & Hall, New York book.

Geology and the Environment by D. R. Coates (July, $35; paper $16.95). A comprehensive examination of the interrelationships among geology and environmental concerns, including environmental management and law. A Chapman & Hall, New York book.

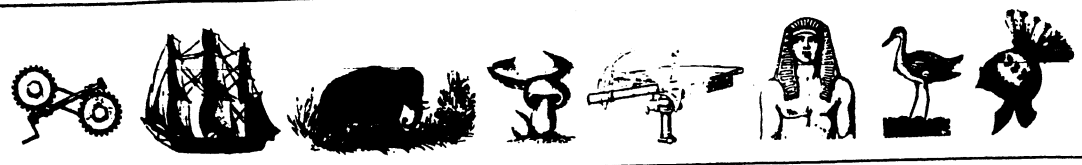
Field Guide to Soils and the Environment: A Guide for Teaching and Learning About Soil Surveys and Their Applications by Gerald W. Olson (July, $33; paper $18.95). A "hands-on" workbook. A Chapman & Hall, New York book.

Encyclopedic Dictionary of Industrial Technology: Materials, Processes and Equipment by David F. Tver and Roger W. Bolz (Aug., $34.50). A compact reference work covering the entire general manufacturing field. A Chapman & Hall, New York book.

Gene Cloning: The Mechanics of DNA Manipulation by David M. Glover (Nov., $11.95 paper). An overview of genetic engineering research. A Chapman & Hall book.

MIT Press

Beyond Mechanization: Work and Technology in a Post-Industrial Age by Larry Hirschborn (Sept., $17.50). Both a historical and technical perspective on post-industrial technology.



The Atom and the Fault: Experts, Earthquakes, and Nuclear Power by Richard I. Meehan (Oct., $13.95). Explores the controversy over the earthquake safety of nuclear power plants.

Genetic Alchemy: The Social History of the Recombinant DNA Controversy by Sheldon Krimsky (Nov., paper, $8.95). Summarizes the policy and ethical issues of gene splicing.

The Physics of the Violin by Lothar Cremer, translated by John S. Allen (Dec., $35). Covers the acoustics of stringed instruments.

Morrow

Stephen Hawking's Universe by John Boslough (July, $12.95). A popularized introduction to Stephen Hawking's theories on black holes and cosmology.

Heading Toward Omega: In Search of the Meaning of the Near-Death Experience by Kenneth Ring (Aug., $15.95). A study of the near-death experience which focuses on the meaning of it for the survivor and the human evolution.

Sympathetic Vibrations by K. C. Cole (Oct., $15.95). A nontechnical account of how physics pervades our everyday lives.

The New York Aquarium Guide to Oceanography edited by Nixon Griffis (Nov., $17.95, illus.). A collection of articles covering birds, fish, cloud formations and coastal geology, seashells, and estuarine ecology.

New American Library

The Filmmaker's Handbook by Edward Pincus and Steven Ascher (July, paper, $12.95, illus.). A comprehensive guide for commercial and independent filmmakers, students and teachers.

The Blue Planet: A Celebration of the Earth by Louise B. Young (Sept., paper $8.95). Explores the latest developments in earth science.

The Video Moviemaker's Handbook by Frank Leslie Moore (Nov., paper $9.95, illus.). A reference and practical how-to manual for the amateur.

W. W. Norton

The Cold and the Dark: The World After Nuclear War by Carl Sagan and Paul Ehrlich (July, $12.95). Presents a shocking new picture of the world after nuclear war, based on the research of over 200 scientists.

How I Photograph Wildlife and Nature by Leonard Lee Rue III (Oct., $19.95, illus.). A guide to becoming a wildlife photographer, where to find the wildlife and how to sell the photographs.

Reed's Nautical Almanac and Coast Pilot: 1985 East Coast Edition (Oct., $21.95, illus.). The American edition containing a wealth of navigational material, including visual navigational aids, East Coast tide tables and tidal current charts.

Oxford University Press

Beyond Vision: One Hundred Historic Scientific Photographs by John Darius (Sept., $29.95). A compilation of scientific photographs ranging from the first daguerrotypes to digitally encoded photographs.

Violent Phenomena in the Universe by Jayant V. Narlikar (Sept., $9.95, illus.). A description of major discoveries in astronomy during the last two decades.

Concise Science Dictionary (Oct., $19.95). A compilation of 7000 terms in all the fields of science.

Insects in Camera by Christopher O'Toole, photographs by Ken Preston-Mafham (Oct., $25). Describes how insects have responded to the "adapt or perish" in evolution.

Princeton University Press

Charles Babbage: Pioneer of the Computer by Anthony Hyman (Sept., $27.50; paper $9.95). A biography of the British 19th century advocate of the use of science in industry.

Spatial Orientation: The Spatial Control of Behavior in Animals and Man by Hermann Schone, translated by Camilla Strausfeld (Oct., $55; paper $14.95). A review of research over the past 25 years, including cybernetics.

The Mechanical Adaptations of Bones by John Currey (Nov., $37.50). Relates the mechanical and structural properties of bone in vertebrates and man.

Medical Thinking: A Historical Preface by Lester King (Dec., $27.50; paper $11.50). Focuses on those aspects of medicine that remain constant through the centuries.

Prometheus

"The Sacred Beetle" and Other Great Essays in Science edited by Martin Gardner (Sept., $22.95). A collection of essays ranging from Darwin on evolution to Carl Sagan on the universe.

Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past by William H. Stiebing, Jr. (Sept., $19.95; paper $9.95). A critical evaluation of some popular hypotheses about man's past.

The Gemini Syndrome: A Scientific Evaluation of Astrology by R. B. Culver and P. A. Ianna (Sept., $18.95; paper $11.95). A response by two astronomers to claims by astrologers that their theories are rationally consistent and scientifically based.

Scribner's

Album of Science, Volume 1: Antiquity and the Middle Ages by John E. Murdoch (Aug., $50, illus.). A visual record of science through antiquity and the Middle Ages.

Three Degrees Above Zero: Bell Labs in the Information Age by Jeremy Bernstein (Sept., $17.95). An account of research at Bell Labs, including a portrait of its seven Nobel Prize-winning scientists.

Inscrutable Earth: Explorations into the Science of Earth by R. nald B. Parker (Oct., $14.95). An exploration of how geology tackles fundamental questions as old as the earth.

A Scientist at th Seashore by James Trefil (Nov., $16.95, illus.). Illuminates the forces governing life on earth via explanations of waves, tides and other seaside phenomena.

A Passion to Know: 20 Profiles in Science edited by Allen Hammond (Nov., $15.95, illus.). Portrays some of the most colorful and creative scientific thinkers.

Shoe String Press

Victorian Science and Religion: A Bibliography with Emphasis on Evolution, Be-

lief, and Unbelief, Comprised of Works Published from ca. 1900 to 1975 by Sydney Elsen and Bernard Lightman (Sept., $42.50). An annotated bibliography of secondary works dealing with both ideas and institutions.

Springer

Mathematics for Econometrics by P. J. Dhrymes (2nd. ed., July, paper $19.80). Contains all the mathematics needed for the accompanying text, "Introductory Econometrics."

Concepts in Viral Pathogenesis edited by Abner L. Notkins and Michael B. A. Oldstone (July, $29.80). A series of articles on the mechanisms by which viruses cause diseases.

Why Math? edited by R. D. Driver (Aug., $24). A text designed for the development of mathematical literacy of students pursuing a liberal arts degree. Undergraduate Texts in Math.

Compatible and Incompatible Relationships, edited by William Ickes (Sept., $42.50t). Documents the interpersonal processes by which relationships begin, intensify, deteriorate and finally dissolve. Springer Series in Social Psychology.

The Geology of the Atlantic Ocean by K. O. Emery and Elazer Uchupi (Dec., $98t; map set $45t). A comprehensive treatment of the ocean floor and adjacent continents, including geological history, plate movements and potential economic value of resources.

Stackpole Books

The New Race for Space: The U.S. and Russia Leap to the Challenge for Unlimited Rewards by James Oberg (Sept., paper $14.95 illus.). Compares the accomplishments and goals of the U.S. and Soviet space programs.

Unipub

Genetics: New Frontiers (Nov., 4 vols, $185). Details of the latest worldwide advances and research in genetics, from the International Congress of Genetics at New Delhi, December 1983.

University of California Press

A Functional Biology of Free-Living Protozoa by Johanna Laybourn Parry (Sept., $24.50). Discusses the physiology, ecology and evolutionary biology of the protozoa in nature.

The Foundations of Psychoanalysis: A Philosophical Critique by Adolf Grünbaum (Oct., $16.95). A comprehensive philosophical examination of Freud's theories.

Science and Values: The Aims of Science and Their Role in Scientific Debate by Larry Laudan (Nov., $14.95). Discusses some basic agreements and disagreements in science.

The Limits of Science by Nicholas Resher (Dec., $28.50). Considers the existence of limitations on scientific inquiry that could in principle preclude the full realization of the aims of science.

University of Massachusetts Press

Curious Naturalists by Niko Tinbergen (Nov., paper $9.95). Descriptions of the author's encounters with bees and bee hunters, birds and insects in a wide variety of locations.

University Press of New England

Sustaining Tomorrow: A Strategy for World Conservation and Development, edited by Francis R. Thibodeau and Hermann H. Field (Nov., $22.50; paper $12.50). An up-to-date sourcebook on the rapidly evolving international environmental situation.

University of Texas Press

Peppers: The Domesticated Capsicums by Jean Andrews (Nov., $35, illus.). A description of the growth, botany and natural history of the capsicum.

Van Nostrand Reinhold

Colon Cancer Genetics by Patrick M. Lynch and Henry T. Lynch (Aug., $44, illus.). An orientration course for physicians, pathologists, geneticists and preventive medicine specialists.

The Encyclopedia of Physics (3rd ed.) edited by Robert M. Besancon (Aug., $119.95). A single-volume encyclopedia containing 354 articles.

Handbook of Printed Circuit Manufacturing by Raymond H. Clark (Sept., $49.50. illus.). A reference source for anyone designing, manufacturing or selling printed circuits.

A Practical Guide to Writing and Publishing Professional Books: Business, Technical, Scientific, Scholarly by Daniel N. Fishel (Oct., $22.95). A guide aimed at professionals.

Introduction to Fuzzy Arithmetic by Arnold Kaufmann and Madan Gupta (Oct., $57.50). An introduction to an arithmetical system for the handling of imprecise, vague, ill-defined and doubtful information.

John Wiley

Drug Consultant 1984–1985: A Current Guide to Clinical Drug Treatments and Their Usefulness edited by Rhoda M. Michaelis and G. R. Brown (July, $18.95, paper). Answers questions on drug treatments for each organ.

Occupational Biomechanics by Don Chaffin and Gunnar B. J. Anderson (Aug., $29.50, illus.). Covers biomechanical principles for evaluating and designing the work environment.

Reference Manual for Telecommunication Engineering by Robert L. Freeman (Aug., $75). Contains graphs, tables and figures that communications engineers need for daily reference.

Behavioral Health: A Handbook of Health Enhancement and Disease Prevention edited by J. D. Matarazzo, N. E. Miller, S. M. Weiss, A. J. A. Hord and Sharlene M. Weiss (Aug., $55). A guide for physicians and mental health professionals for the application of behavioral and biomedical science techniques to the maintenance of health.

The Psychologist as Expert Witness by Theodore H. Blau (Sept., $35). Covers what the psychologist should know before being called as an expert witness in court proceedings.

Handbook of Counseling Psychology edited by Steven D. Brown and Robert W. Lent (Sept., $58). Covers vocational and career counseling, personal counseling, emotional problems and other topics of interest to mental health practitioners.

Knowing and Making Wine by Emile Peynaud (Oct., $34.95). A survey of wine-making techniques and wine appreciation for professional wine-makers and amateur wine enthusiasts.

A Guide to Nuclear Power Technology: A Resource for Decisionmakers by Frank J. Rahn and Robert A. Meyers (Nov., $65). A complete survey of nuclear power technology including nuclear physics, risk assessment, and a discussion of the Three Mile Island accident.

Kirk-Othmer Concise Encyclopedia of Chemical Technology edited by Martin Grayson (Dec., $99.95). A 1.8 million-word abridgment of the 26-volume third edition of the *Kirk-Othmer Encyclopedia of Chemical Technology*.

Yale University Press

Discovers of the Lost World: An Account of Some Who Brought Back to Life South American Mammals Long Buried in the Abyss of Time by George Gaylord Simpson (Sept., $25, illus.). The story of the scientists who discovered the "lost world" of extinct species in South America.

T. H. Huxley's Place in Natural Science by Mario A. di Gregorio (Oct., $25). An outline of Huxley's major contributions to science.

To Do No Harm: DES and the Dilemmas of Modern Medicine by Roberta J. Apfel, M.D. and Susan M. Fisher, M.D. (Nov., $15.95). The story of the disaster of DES, including a discussion of the medical and psychological effects of DES. □

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Publishers Weekly

The Journal of the Book Industry

SCI-TECH BOOKS: THE ACQUISITION PROCESS
NEW SCI-TECH BOOKS
1984 BOOK OUTPUT & PRICES: FINAL FIGURES
SUMMER BOOKSELLER SURVEY

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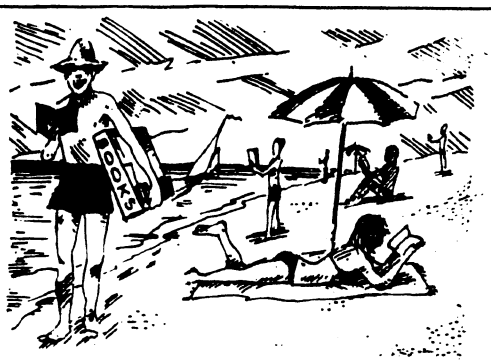


A PW Special Report

Bringing in the Books

Acquisition in Sci-Tech Publishing Is a Venturesome Affair

by Alexander Hellemans

Photographs © Alexander Hellemans

Klaus Peters, president, Birkhäuser Boston

We commonly picture an acquisitions editor as someone sitting at a desk snowed under by mounds of manuscripts, a large part of his job consisting of separating the wheat from the chaff. If this image is a fair depiction of the editor of fiction at a commercial house, or even the scholarly nonfiction editor in the humanities, it definitely does not correspond to the role of the acquisitions editor in the field of technical and scientific books.

"One thing an acquisitions editor in the scientific and technical field cannot do is sit back and wait for manuscripts to come in," says Harold Crawford, editor-in-chief for technical books at McGraw-Hill. Donald Degenhardt, editor for physics at Oxford University Press, agrees: "The publishing of a book for an academic in the humanities is an important career step, maybe a step on the road to tenure, and my colleagues in the humanities get a large number of manuscripts from aspiring professors. There is quite a large effort devoted just to sifting the literally dozens of manuscripts that arrive every week. But the publishing of books, whether monographs or textbooks, is not really seen as an important success indicator in a scientist's career."

The editors *PW* talked to generally agreed that scientists, doctors and engineers form the group that is the most difficult to convince to write a book. "Writing books is not their business," says Alan Liss, president of Alan R. Liss Inc. "It is secondary, a sideline, a nuisance, an interference with what they are trying to do. You have to have a good project to intrigue somebody."

It is a fact that writing research papers contributes much more to the advancement of the scientist's career than writing books. Ironically, "We are competing with the system of 'publish or perish,' " says Yale Altman, senior editor at Elsevier Science Publishing. "They have to publish research, which of course brings in grants. Their whole livelihood and future depend on what they bring in on scientific grants."

And the progress of science itself makes it more difficult for researchers to accept book assignments. Klaus Peters, president of Birkhäuser Boston, explains that 50 years ago the situation was quite different: "For example, if there was a certain speciality in mathematics, it was clear that two or three people were experts in that subject, and for them it was an honor to present their point of view. So you could convince one of these three to write a book. Now the subject has split up in so many sub-specialities that if somebody wants to write a book that also touches upon the research of other people, he has to make a large effort to assimilate the other people's work."

Even the economic crush of recent years has made itself felt in the offices of technical publishers. "There is greater pressure on people in industry to create increased efficiency in their own jobs and to devote more of their time to turning industry around, so that there is a greater reluctance to get themselves involved with books as well," says Crawford.

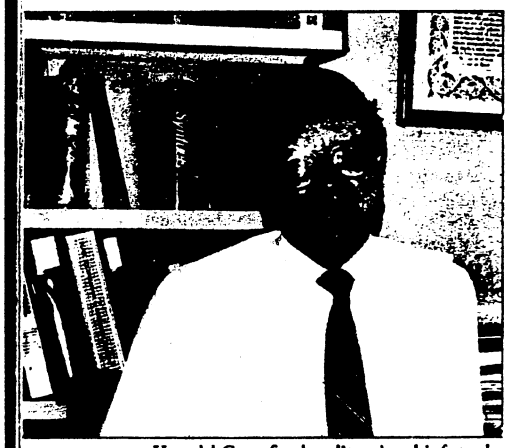
Fortunately, a large number of scientists are authoring books, although their number does not increase at the rate of growth of science in general. "Many of the people who are determined to write a book have a certain goal," says Altman. "The motivation usually isn't money. It is the feeling of creating a field, or having students use their book, or developing courses of which not many exist." Many write textbooks and, according to Altman, "the incentive is the prestige of having an outstanding book used by a large number of students."

"The financial rewards are also, in the case of textbooks, not to be taken lightly," continues Altman. "In some cases they can be incredibly high." By and large, however, the financial aspect of a book plays only a minor role. "I never knew anybody who actually wrote a medical book for money," says Lewis Reines, president of Lippincott.

Degenhardt also agrees that "for a lot of people, writing a book is still a personal satisfaction and achievement, the satisfaction of spreading their ideas to a wider audience in a more accessible and more permanent form than journal articles."

A number of scientists reflect their sometimes several decades of research in a book: "Chandrasekhars's book, *The Mathematical Theory of Black Holes*, is a prime example where a single author has developed a very theoretical field himself, has published papers, and then has set a period of time to finish a monograph on that area."

Hellemans works at the American Institute of Physics and is also a freelance writer.



Harold Crawford, editor-in-chief, technical books, McGraw-Hill

continues Degenhardt. Unfortunately this happens too rarely, he adds. "There are a lot of subjects at the moment where the subject is ripe and the definitive book is waiting to be written. Yet one cannot convince any of the top people in the field to set aside the time to write the book. They are too busy advancing the field."

Certain groups of scientists do, however, see a book as a means of furthering their career. Carol Beasley, publisher of engineering, computer science and mathematics at Wiley, finds this to be the case for her authors: "It is true that for most of the professionals we deal with, they have an awful lot of opportunities to make money if they get professional recognition. And publishing is one among many competing opportunities." Crawford takes this idea even one step further: "We often have an author who is affiliated with a particular company. This company is quite delighted to have its famous person represented in the field. The affiliation itself is tremendous publicity, and often the company will be very cooperative in the use of its facilities for the development of books."

Left: Yale Altman, senior editor, Elsevier Science Publishers

Donald Degenhardt, editor for physics, Oxford University Press

Some scientists, especially those writing for a general audience, write to further sicence itself. "In a time when the funding of science is not particularly strong, those scientists believe it is important for the public to understand what science is and what it contributes to the culture," says Linda Chaput, president of W. H. Freeman.

The Acquisition Process

Because science has grown to such proportions, even the acquisitions editor with a substantial research background has to rely on advisors from the scientific or technical community. Peters, who himself is a mathematician and chose a career in publishing after a six-month sabbatical from his university, considers advisors as the *sine qua non* for the acquisition of high-quality books: "There are maybe 30 to 50 people all over the world on whom I rely very heavily for reviewing books, getting advice, finding out about new trends in their field and for the finding of the right authors."

The university presses are of course in the most favorable position in regard to advisors; many of them can look for advisors to faculty members on their own campuses. But advisors from other universities can play an influential role. "For our Oxford Series in Physics, in the 1930s when it started, we managed to get the top people in the Cavendish Laboratory in Cambridge to be the series editors," says Degenhardt. "The result of that was that most of the important physics that was done in Cambridge was published in Oxford. This was a 'scoop' of the time, and one that has benefited us ever since."

Although journals compete with publishers for the authors' time, they are viewed as beneficial: "Since at Elsevier we have so many journals, we are dealing with people at the forefront of many fields," says Altman. "We can develop books around certain journals because we reach such a captive audience. It is easier to cluster books and journals, and we get ideas from various people for books." Carol Beasley finds this synergism also useful: "There have been a number of instances where someone who contributed to a journal of ours turns into a book author, or a book author turns into a journal editor."

Of course, potential authors themselves are the best sources for new book ideas. However, their suggestions by themselves are usually not sufficient to start up a project. "The best launch is by some happy accident where the publisher and the author have the idea virtually simultaneously," says Degenhardt, "but this is rare. . . ."

Often the idea originates with the editors themselves. "It is nice when you can suggest an idea to an author and have the idea taken up. I think those books are often satisfactory—from the publisher's point of view, obviously," says Degenhardt. Altman agrees: "In fact, many of the better science books in the last five or 10 years came about because the publisher approached a particular individual and asked that person to write that book," says Altman. "These people are not just going to sit around and write an outline and four chapters and submit it to you. The idea has to come from you, and once it comes from you, it makes it a lot easier for them. And if you make that situation attractive in terms of editorial help and financial rewards and so on, they will consider it."

Not all editors agree with this completely: "We don't find that we propose books," says Myer Kutz, executive publisher of scientific and technical books at Wiley. "What you do is that you probably find somebody who has gotten somewhat of a start on a book. Because of time pressure and the amount of money you can earn as an author by writing a book, it is hard to find somebody to start from scratch to fill a need. From an economic viewpoint it doesn't make sense to authors—except in some cases such as computer science or electrical engineering."

Often a course taught at a university is the starting point for a book. Altman cites as an example E. R. Kandel and J. H. Schwartz's *Principles of Neural Science*: "Kandel had a syllabus for

four or five years and he was anxious to see this put in a book form and to reshape the curriculum and teaching of neural science. Fortunately we acquired the book and exactly what was expected happened: it has become the leading book in the field."

Incentives for the Author

Important in convincing an author to sign up a book is what the publisher can offer him. "In my view, the incentives are distribution and the speed of publication," says Peters. "Reputation of the programs in which the book is published is very important too. Less important, with some exceptions, is the financial aspect."

Linda Chaput believes that it is easier for her editors to sign up scientists, such as Emilio Segrè or Steven Weinberg, writing for a general audience, because of "our commitment to present science in a way that is coherent and does not trivialize it. Many of them dread doing books that are commercially successful, but not substantial."

Much less understood by authors, but crucial for the successful completion of a project, is the support a publisher can give during writing. "Many of the people we approach are rather startled by the idea of being asked to do a book," says Crawford. "They don't consider themselves necessarily the best writer. And it is here where acquisition editors have to give encouragement, to indicate to them that they will be given all the help that is necessary to produce the manuscript." Especially when scientists set out to write a book for a general public, "they invariably discover that it is much more work than they ever had expected," says Linda Chaput. "They are gratified to know that an editor is reading, is understanding or not understanding, what they are trying to say, and that gives them the courage to continue writing."

The Editor's Background

Although they all work in the field of science and technology, acquisitions editors usually have a much wider variety of backgrounds than their authors. Opinions vary widely on how important is a training in science or technology. "There are two schools of thought on that," says Degenhardt. "My own training is in physics, and I like to think I can use that, and I like to feel I can perhaps establish a rapport with the scientists at a slightly more professional level, but there are very successful scientific editors who are trained in the humanities. Both schools can exist in the same publishing house. I know a large commercial publishing house in which the physics editor is a humanist and the chemistry editor is a chemist." Crawford agrees: "I have seen extraordinarily successful acquisitions editors, both in McGraw-Hill and in other publishing houses, who are not schooled in engineering or the sciences at all." And he continues: "One of the arguments I have believed in over the years is that if an acquisitions editor has a background that is in a particular field, that can—but not necessarily so—make that person a little bit too biased. They might ride their hobbyhorses." "For our editors it is almost detrimental to know too much about a field," says Chaput, "because of our fiat that the most important part of their job is to act as an advocate for our readers."

"There are a lot of subjects [for which] the definitive book is waiting to be written. Yet one cannot convince any of the top people in the field to set aside the time to write the book"

Of course, a background in the field you are working in should not actually disqualify you in your work. "It is very useful to have a solid training in one science, having done research yourself," says Peters. "You then have a totally different attitude towards problems. The next thing is that you have to forget this training totally: you cannot go to an author and discuss your own interests. You have to be able to suppress that and be a good listener."

The growth in science is such that even an acquisitions editor with a solid background in science soon finds himself slipping back into the position of an editor virtually without scientific training. "After two years of being an editor, you don't really have the knowledge and the strength anymore to go into a scientific discussion," finds Peters. Kutz sees the proliferation of fields as an important problem: "The scientific disciplines are broken down into a great many small areas. Within chemistry you have dozens and dozens of different areas, and there is no chemist who knows them all. We have three PhD chemists who work as editors, and they cannot know in depth all the areas we publish in; they can know only one or two."

Most editors agree that a scientific or technical background is useful in this profession, but it definitely doesn't suffice to make you a successful editor. "I think it is important to have a wide range of contacts in the different fields you are active in," says Altman. "Also the willingness to go out, visit and talk to a wide variety of people. I don't think there is any substitute for just knocking on doors and finding out what is happening. You cannot just sit in the office and rely on a few advisors; you sort of lose touch."

The capability of projecting into the next three to five years is important. "The talents we look for include a sense of strategic planning," says Kutz. "We want the editors to take a long-range view of the subject areas they are responsible for, and to be able to plan, because there is competition for resources, and we want to be able to put our resources in the most productive place." And Beasley adds: "They must be able to understand from a very few clues where their discipline is moving. Out at the forefront you get a lot of mixed signals about which research directions are going to be significant, what the field is going to look like."

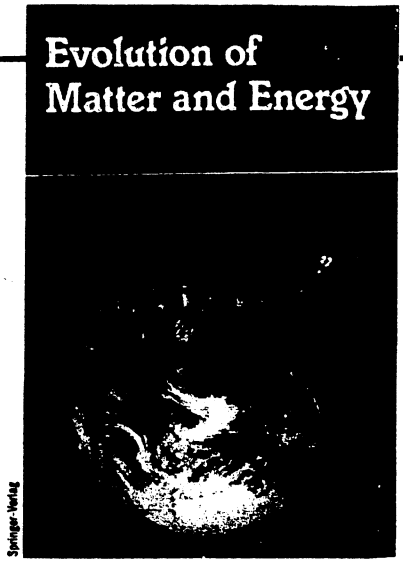
A fourth necessity is an increased awareness of the market. According to Kutz, "There is a fundamental change beginning to take place throughout professional and reference publishing. Editors will be more responsible for how well their books do than in the past. It used to be that the focus was entirely on signing contracts, getting the manuscripts successfully into production, and then going on to more contracts and more manuscripts. Now, in addition to planning, in addition to keeping up with the marketplace, we also want editors to focus on how well their books are selling, and to keep consulting with the marketing people to see what ideas might help in the marketing process." Crawford finds this to be true at McGraw-Hill: "Our editors have to be totally involved and highly responsible for the financial aspects of their projects."

Not only contact with the marketing people is helpful, but also contact with the future readers of the books: "We publish in fairly small quantities, so we want to know what, for example, polymer chemists are interested in over the next three to five years," says Kutz. "We have fairly large travel budgets for our editors. They go out actively talking to people, getting, as we put it, 'close to the marketplace.'"

"In the textbook field, editors certainly need to know the market," says Howard Aksen, publisher at Harper & Row. "They need a familiarity with what is going on in the college marketplace for scientific textbooks. They need to understand the curriculum, and how it works."

Editors and publishers play a substantial role in originating and creating books in science and technology. But the author remains primary. "You can bring in editors and assistant editors and all sorts of internal help, but there is no substitute for that author to do the work," says Altman.

Editor: Alexander Hellemans



Sci-Tech Books for Fall

A Selective Listing of Highlights

ACADEMIC PRESS

The Effects of Noise on Man (2nd ed.) by Karl D. Kryter (July, $34.50). A reference source of up-to-date research knowledge concerning effects of noise on people; reports and analyzes major procedures used in regulation and control of noise.

Iron Fortification of Foods edited by Fergus M. Clydesdale and Kathryn L. Wiemer (July, $36.50). Analyzes the problems encountered in treating anemia through iron fortification of staple foods and beverages.

Methods for the Oxidation of Organic Compounds: Alkanes, Alkenes, Alkynes, and Arenes by Alan H. Haines (Aug. $83). Effective oxidative techniques for the synthetic chemist, including practical hints, detailed examples and full references to the original literature.

Animal Cell Biotechnology, Volumes 1 and 2 edited by R. E. Spier and J. B. Griffiths (Sept., $47 and $59 respectively). A practical introduction to and an in-depth survey of a new and largely uncharted facet of biotechnology.

Molecular Cytology, Volume 1: The Cell Cycle; Volume 2: Cell Interactions by Jean Brachet (Dec., price not set). Reviews state-of-the-art knowledge of the morphology and biochemistry of cells, from cytoplasmic organelles to differentiated and malignant cells.

ADDISON-WESLEY

Computational Physics by Steven E. Koonin (Sept., $31.95t): Explains the modeling of physical processes on a computer by using numerical techniques.

Introduction to Robotics: Mechanics and Control by John J. Craig (Sept., $35.95t). An advanced text that covers the mechanics, control and programming of robots and mechanical manipulators.

Genetics and Molecular Biology by Robert Schleif (Oct., $35.95t). A unified, advanced treatment of the fundamental material of molecular biology.

Manual of Nursing Therapeutics by Pamela L. Swearingen (Nov., spiral-bound, $17.95t). A manual on the planning of effective nursing care.

ARTECH HOUSE

Microwave Integrated Circuits (2nd ed.) edited by J. Frey and K. Bhasin (Aug., paper $45). A collection of 53 articles on computer-aided design of microwave integrated circuits.

Microwaves Made Simple: Principles and Applications by W. Stephen Cheung and Frederic H. Levien (Oct., $50). An introduction for microwave technicians, technical managers and electronics students.

Principles of Secure Communication Systems by Don J. Torrieri (Sept., $61). A source on protecting modern communication systems.

ATHENEUM

On the Frontiers of Science by G. Harry Stine (Aug., $8.95). A how-to manual for building machines that should not work according to current principles.

BASIC BOOKS

The Interpersonal World of the Infant: A View from Psychoanalysis and Developmental Psychology by Daniel N. Stern (Aug., $22.95). Discusses a theory, based on psychoanalysis, of how human beings create a sense of themselves and their relation to others.

The Theory and Practice of Group Psychotherapy (3rd ed.) by Irvin D. Yalom (Sept., $22.95). A standard text which combines the author's clinical experience with the results of the latest research.

Theaters of the Mind: Illusion and Truth on the Psychoanalytic Stage by Joyce McDougall (Nov., $24.95). Hypotheses, interpretation and insights from the practice of psychoanalysis.

BIRKHAUSER BOSTON

Quest for the Killers by June Goodfield (Sept., $24.95, illus.). The companion volume to the PBS series on scientists' and doctors' battle against disease.

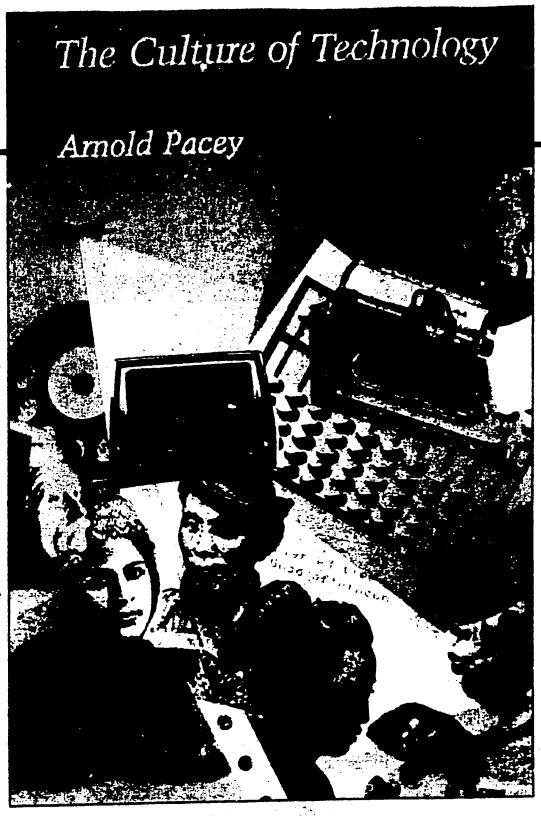
Science, Computers, and People: From the Tree of Mathematics, Stanislaw Ulam edited by Gian-Carlo Rota and Mark Reynolds (Sept., $14.95, illus.). A collection of essays focusing on philosophical, historical and scientific topics related to Ulam's work.

Diamond Dealers and Feather Merchants: Tales from the Sciences by Irving M. Klotz (Oct., $14.95, illus.). A tour of scientific battles between the guardians of the status quo and proponents of radical, untested ideas.

The Tender Ship: Governmental Direction of Technology by Arthur M. Squires (Nov., $16.95, illus.). Discusses cooperation—or the lack thereof—between government and private industry in technological management.

Halley's Comet: Encounter 1986 by G. A. Tammann and Philippe Veron (Nov., $14.95, illus.). A presentation of the science and myths created in the wake of Halley's Comet.

The Verification Challenge: Problems and Promise of Strategic Nuclear Arms Control Verification by Richard A. Scribner, William Metz and Theodore Ralston (Nov., pa-



From "The Culture of Technology" (MIT Press)

paper $15, illus.). Discusses the nature of verification problems and the degrees of confidence and uncertainty of available verification methods.

R.R. BOWKER

Scientific & Technical Books & Serials in Print, 1986 edited by Andrew Grabois (Dec., $149.95t). Includes more than 115,000 book entries and 18,000 serial entries.

BRUNNER/MAZEL

The Real Self: A Developmental, Self, and Object Relations Approach by James F. Masterson (Oct., $25t). Discusses a concept of the real self and its disorders.

A DSM III Casebook of Differential Therapeutics: A Clinical Guide to Treatment Selection by Samuel Perry, Allen Frances and John Clarkin (Oct., $37.50). Over 50 case examples illustrating the field of treatment selection.

Ericksonian Monographs No. 1: Elements and Dimensions of an Ericksonian Approach edited by Stephen R. Lankton (Oct., $22.50). The inaugural issue of a series of monographs on Ericksonian hypnosis and family therapy.

Comprehensive Family Therapy: An Integration of Systemic and Psychodynamic Treatment Models by Diana Adile Kirschner and Sam Kirschner (Dec., $30t). A synergistic approach to psychotherapy that integrates systemic and psychodynamic treatment models.

CAMBRIDGE UNIVERSITY PRESS

The Cambridge Atlas of Astronomy edited by Jean Audouze and Guy Israel (July, $75, illus.). A one-volume reference on astronomy containing 1100 photographs and illustrations.

The Mechanical Universe: Introduction to Mechanics and Heat by Richard Olenick, Tom M. Apostol and David L. Goodstein (Aug., $32.50t, illus.). The book that accompanies the PBS television course entitled *The Mechanical Universe*.

Seven Clues to the Origin of Life: A Scientific Detective Story by A. G. Cairns-Smith (Aug., $17.95t). The search for the solution to the mystery of the origin of life, using the methods of Sherlock Holmes.

From Quark to Quasar by Peter H. Cadogan (Oct., $19.95t, illus.). A journey from the small world of elementary particles to the entire universe through 26 steps in increasing order of magnitude.

Basic Astrophotography by Michael Covington (Oct., $24.95t, illus.). A gude for amateur astronomers and photographers.

The Cambridge Astronomy Guide: An Introduction to Practical Astronomy by William Liller and Ben Mayer (Nov., $24.95t, illus.). A guide for the amateur wishing to contribute to astronomy.

Supernovae by Paul Murdin and Lesley Murdin (Nov., $19.95t, illus.). A discussion of supernovae, pulsars and nucleosynthesis for the lay reader.

CROWN

Einstein in America by Jamie Sayen (July, $17.95, illus.). An account of Einstein's years in Princeton.

The Skywatcher's Handbook by Colin Ronan (July, $13.95, illus.). A complete astronomical guide to the stars and heavenly bodies.

The Columbia College of Physicians and Surgeons Complete Home Medical Guide edited by Genell J. Subak-Sharpe (Nov., $39.95, illus.). A comprehensive medical guide with contributions by 58 physicians.

DELL

The Women's Drugstore by Harold Silverman (Sept., $9.95 paper). A comprehensive reference on the entire spectrum of prescription and non-prescription drugs for women's health problems.

DOVER

Frontiers of Modern Physics: New Perspectives on Cosmology, Relativity, Black Holes and Extraterrestrial Intelligence by Tony Rothman and others (Oct., paper, $7.95t). A collection of seven articles accessible to the layer reader.

ELSEVIER SCIENCE PUBLISHING

Paul Ehrenfest, Volume 1: The Making of a Theoretical Physicist by M. J. Klein (July, paper $22.50). Covers the life and work up to 1920 of a physicist who played a unique role in the development of physics early in this century.

Principles of Neural Science (2nd ed.) edited by Eric R. Kandel and James H. Schwartz (July, $47.50). An introduction to the study of the brain, its structure, function and development, and the control of behavior.

Petroleum Effect in the Arctic Environment edited by F. R. Engelhardt (July, $63). Discusses the physical and ecological effects of petroleum in the Arctic environment, a potential source for petroleum.

Abbreviations Dictionary: Augmented International Seventh Edition by Ralph DeSola (Sept., $45). A standard reference.

Digital Filters: Theory and Applications by Nirmal Bose (Oct., $44.95). A treatment that includes filtering over a finite field, 2-D filter theory and linear shift-variant filters.

W. H. FREEMAN

Constructing the Universe by David Layzer (Aug., $27.95, illus.). Explores Newton's and Einstein's theories of space, time and gravity. A Scientific American Book.

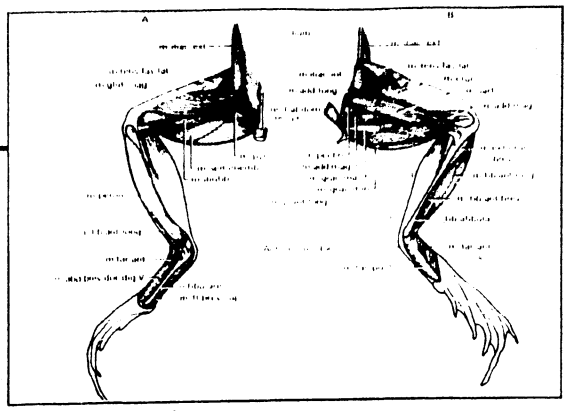
Language, Script, and the Computer edited by William S-Y. Wang (Aug., paper $12.95t). Thirteen articles ranging from the advent of speech to artificial intelligence. Scientific American Reader.

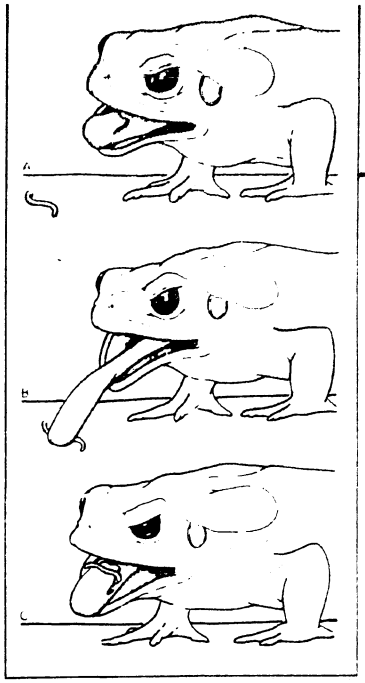
Human Genetics: An Introduction to the Principles of Heredity (2nd ed.) by Sam Singer (Oct., paper $13.95t, illus.). Treats the fundamentals of human genetics in a historical approach.

The Messengers of Life by Lawrence Crapo (Oct., $21.95t; paper $11.95t). Explains the nature, function and production of hormones.

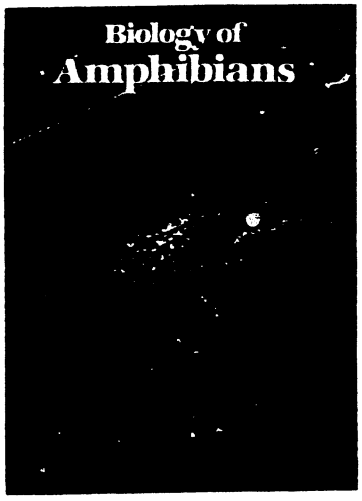
The Mind's Eye edited by Jeremy M. Wolfe (Oct., paper $12.95t). A collection of articles about vision, illusions, imagery and the workings of the mind.

An Introduction to Cancer Biology edited by Errol Friedberg (Oct., paper $12.95t). A collection of articles on major types of can-





Cover (right) and illustrations by Linda Trueb from "Biology of Amphibians" (McGraw-Hill)



cer, carcinogens and the function of DNA, and malignant transformation.

HARMONY BOOKS

Advanced Technology Warfare by Richard S. Frieman and others (Nov., $22.95; paper $12.95). A look at the multi-billion-dollar high-technology war industry.

HARPER & ROW

The Enigmas of Chance: An Autobiography by Marc Kac (Sept., $16.95). A brilliant mathematician offers a rare look at the inside world of mathematics and physics.

The High Cost of High Tech: The Dark Side of the Chip by Len Siegel and John Markoff (Nov., $16.50). A discussion of how the chip is affecting our future.

On Becoming a Biologist by John Janovy Jr. (Nov., $13.95). A noted naturalist discusses biology as a career.

HARVARD UNIVERSITY PRESS

Sexual Selection in Animal Genitalia by William C. Eberhard (Nov., $25, illus.). Presents a new theory that explains male genitalic evolution as a result of sexual selection.

Chemotherapy in Psychiatry: Principles and Practice (Revised and enlarged edition) by Ross J. Baldessarini (Nov., $25, illus.). Provides rational and scientific underpinnings for the treatment of patients.

The Human Skeleton by Pat Shipman, Alan Walker and David Bichell (Dec., $27.50, illus.). A comprehensive study of the human skeleton, including functional and dynamic aspects.

Niels Bohr: A Centenary Volume edited by A. P. French and P. J. Kennedy (Dec., $27.50, illus.). Combines assessments by nearly 30 eminent scientists with some of Bohr's most insightful writings.

HOLT, RINEHART AND WINSTON

Licence to Rape: Sexual Abuse of Wives by David Finkelhor and Kersti Yllo (July, $16.95). An examination of the psychological and social implications of sexual abuse within marriages.

Imaging Saturn by Henry S. F. Cooper Jr. (Nov., paper $8.95, illus.). A moment-by-moment account of the Voyager I and Voyager II missions which provided the first close-up pictures of Saturn.

THE JOHNS HOPKINS UNIVERSITY PRESS

Agricultural Change and Rural Poverty edited by John Mellor and Gunvant Desai (Oct., $24.95). An assessment of the interrelationships among poverty, food prices and the growth performance of agriculture.

KEATS PUBLISHING

The Nutrition Desk Reference by Robert H. Garrison Jr. and Elizabeth Somer (July, $29.95). A basic resource including overviews of essential nutrients, the role of diet in health, and drug-nutrient interaction.

1984–85 Yearbook of Nutritional Medicine edited by Jeffrey Bland (July, $39.95). Twelve nutrition specialists present new findings in nutritional research.

Dr. Abram Hoffer's Guide to the Identification and Treatment of Schizophrenia by Abram Hoffer (Nov., $14.95; paper $9.95). Explains schizophrenia and related mental illnesses and describes the role of nutrition in their treatment.

Nutrition for the General Practitioner by Abram Hoffer (Dec., $16.95). A basic resource for the GP on the role of preventive health care and the orthomolecular approach to traditional medicine.

Nutrition in Nursing by Betty Kamen and Lynn Fraley (Dec., $14.95). A basic resource for nursing professionals.

McGRAW-HILL

Biology of Amphibians by William E. Duellman and Linda Trueb (Sept., $40, illus). A reference summarizing the functional and evolutionary biology of amphibians.

McGraw-Hill Dictionary of Biology edited by Sybil P. Parker (Sept., paper $15.95). A compilation of over 15,000 terms and definitions in all the biological sicences.

McGraw-Hill Dictionary of Chemical Terms edited by Sybil P. Parker (Sept., paper $15.95). A compilation of more than 11,300 terms and definitions in all the fields of chemistry.

McGraw-Hill Dictionary of Physics edited by Sybil P. Parker (Sept., paper $15.95). A compilation of over 11,400 terms and definitions in all areas of physics.

Electronics Applicatons Sourcebook, 1986 Edition edited by Harry L. Helms (Oct., two vols., $250). A compilation of application notes providing essential data and guidelines for engineers and technical professionals.

Design of Earthquake-Resistant Buildings by Minoru Wakabayashi (Oct., $44.50). Presents the results of the cooperation between Japan and the U.S. on research involving earthquakes and building design.

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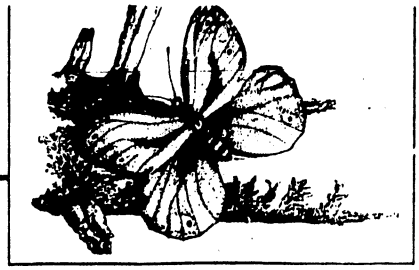
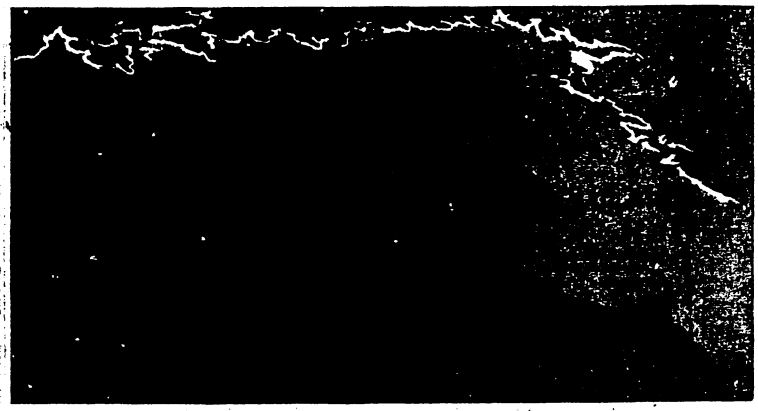
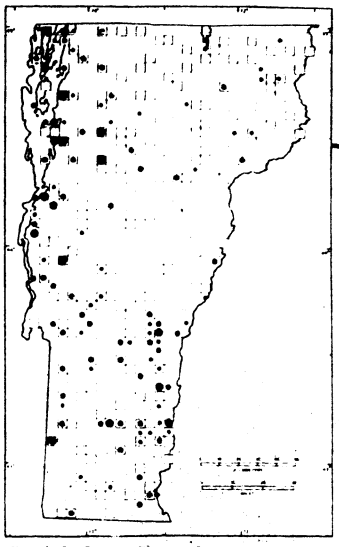


Below: from "Wings in the Sea: The Humpback Whale" (University Press of New England)





Top left: from "Bogs of the Northeast," "Atlas of Breeding Birds of Vermont" (University Press of New England)

Materials Handbook (12th ed.) by George S. Brady and Henry R. Clauser (Nov., $49.50). Contains information on some 13,000 materials and substances.

Standard Handbook of Professional Consulting Engineering Practice by Tyler G. Hicks and Jerome F. Mueller (Nov., $39.95). A guide to techniques for starting, staffing, expanding and prospering in a consulting engineering business.

MACMILLAN

Introduction to Bryology by Wilfred B. Schofield (Aug., $45, illus.). An introduction to the structure, evolution and interrelationships of mosses, liverworts and hornwarts.

Dictionary of Robotics by Harry Waldman (Aug., $34.95, illus.). A compilation of 2000 terms and definitions in robotics and related fields.

Astrophotography: A Step by Step Approach by Robert T. Little (Sept., $19.95, illus.). A guide for the beginning astrophotographer.

Maks of the Universe by Edward R. Harrison (Oct., $18.95, illus.). A discussion of the conception of the universe, ranging from the earliest visions to modern cosmology.

METHUEN

Walking Machines: An Introduction to Legged Robots by D. J. Todd (July, $39.50). Discusses the history and recent developments in legged machines.

Handbook of High Speed Machining Technology by Robert I. King (July, $44.50). A reference on recent research and production development in high-rate metal removal.

Amino Acids and Peptides by J. S. Davies (Oct., paper, $69.95). A desk-top reference with over 1000 entries on 5000 compounds.

Handling and Management of Hazardous Wastes by T. H. Allegri Sr. (Oct., $45). Describes the manner in which hazardous materials must be dealt with, including legal and ethical aspects.

Handbook of Engineering Geomorphology edited by P. G. Fookes and P. R. Vaughan (Nov., $66). A practical, field-oriented book for designer and contractor.

MIT PRESS

The Natural History of Primates by J. R. Napier and P. H. Napier (Sept., $19.95, illus.). An introduction to the order of primates, including evolutionary aspects and anatomy.

Military Enterprise and Technological Change: Perspectives on the American Experience edited by Merritt Roe Smith (Sept., $30, illus.). A study of the influence of the military on technological development in the U.S.

Vaulting Ambition: Sociobiology and the Quest for Human Nature by Philip Kitcher (Oct., $25). A critical evaluation of the claims made by sociobiologists about human nature.

NEW AMERICAN LIBRARY

The Mosby Medical Encyclopedia (Nov. $10.95). A reference work on current medical issues, including information on prescription drugs.

The Nova National Science Test by Ted Bogosian and WGBH Boston (Oct., $6.95). The educational companion volume to the special quiz features shown on *Nova*.

NORTON

Psychotherapeutic Change: An Alternative Approach to Meaning and Measurement by Alvin R. Mahrer (Sept., $22.95). Introduces an approach based on in-therapy change paradigm using illustrations from psychotherapeutic sessions.

Genograms in Family Assessment by Monica McGoldrick and Randy Gerson (Oct., paper, $9.95). Explains a graphic way of organizing the mass of information gathered during a family assessment.

Working with Families of the Mentally Ill by Kayla Bernheim and Anthony Lehman (Dec., $18.95). Presents a practical, psychoeducational approach.

PANTHEON

Space, Time, Infinity: The Smithsonian Views the Universe by James S. Trefil (Sept., $29.95, illus.). An encompassing view of the universe from theories of its origin to the theories of the "new physicists."

PHALAROPE BOOKS

Insect Life: A Field Entomology Manual for the Amateur Naturalist by Ross H. Arnett and Richard L. Jacques (Aug., paper $14.95). Teaches how to identify, collect, preserve and raise insects and discusses aspects of insect life.

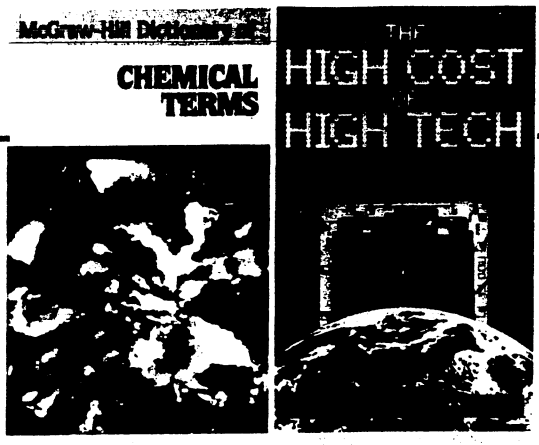
Pond and Brook: A Guide to Nature Study in Freshwater Environments by Michael J. Caduto (Nov., paper, $12.95, illus.). An examination of all types of life forms found in ponds, lakes, streams, rivers and wetlands.

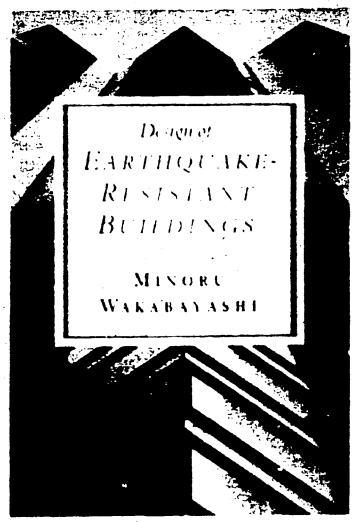
PLENUM

The Great American Biotic Interchange edited by Francis G. Stehli and S. David Webb (Oct., $75). A number of contributions on inter-American biotic interchange as well as the plate tectonics of the Caribbean.

Fiber Optics: Technology and Applications by Steward D. Personick (Oct., $45). A discussion of fiber optical technology, especially in regard to applications in information technology and sensing systems.

Health Psychology: A Psychobiological Perspective by Michael Feuerstein, Elise E. Labbe and Andrzej R. Kuczmierczyk (Dec.,





Clockwise from left: from "Design of Earthquake-Resistant Buildings" (McGraw-Hill), "McGraw-Hill Dictionary of Chemical Terms," "The High Cost of High Tech" (Harper & Row)

$2: .50). A presentation of the theoretical, empirical and clinical aspects of the field of health psychology.

PRENTICE-HALL

Teaching Children about Science: Ideas and Activities Every Teacher and Parent Can Use by Elaine Levenson (Sept., paper $14.95). A guide especially intended for teachers without scientific training.

The Earth and How It Works: Projects, Ideas, and Activities in Environmental Science by Philip R. Holzinger (Oct., paper $10.95). A lab manual and workbook.

Teaching the Fun of Physics: 101 Activities to Make Science Education Easy and Enjoyable by Janice Pratt Van Cleave (Oct., paper $9.95). An "idea catalogue" of classroom experiments for elementary schools and science fairs.

Toward a New Brain: Evolution and the Human Mind by Stuart Litvak and A. Wayne Senzee (Nov., paper $8.95). A comprehensive critique of Darwinism based on the study of the genesis and nature of the brain.

PRINCETON UNIVERSITY PRESS

A Guide to the Birds of Colombia by Steven L. Hilty and William L. Brown (July, $95; paper $42.50t, illus.). A description of nearly 1700 species of South American birds.

Honeybee Ecology: A Study of Adaptation in Social Life by Thomas D. Seeley (Oct., $39.50; paper $14.50, illus.). Studies the diversity of traits of honeybees from a natural selection perspective.

QED: The Strange Theory of Light and Matter by Richard P. Feynman (Nov., $18.50t, illus.). A treatment of quantum electrodynamics for the lay reader.

Birds of New Guinea by Bruce M. Beehler, Thane K. Pratt and Dale A. Zimmerman (Nov., $65; paper $37.50t, illus.). A field guide to more than 700 species of birds.

Bird of Passage: Recollections of a Physicist by Rudolph Peirls (Nov., $29.50t), illus.). Memoirs by one of the initiators of atomic-bomb research during World War II.

SCRIBNERS

The Universe Next Door: A Complete Guide to Exploring the Skies and Understanding What You See by Terry Holt (Oct., $24.95, illus.). A handbook for the amateur.

The Audubon Society Guide to Attracting Birds by Stephen W. Kress (Oct., $24.95). A compact encyclopedia of bird habitats, behavior and lore.

Build Your Own Telescope by Richard Berry (Oct., $24.95). Contains the complete plans for five high-quality telescopes.

Mayonnaise and the Origin of Life by Harold J. Morowitz (Nov., $15.95). A collection of 50 essays interweaving biology, the physical sciences and personal experience.

SHERIDAN HOUSE

Fly and Survive: Safety in General Aviation edited by Ronald and Leslie Hurst (July, $26.50, illus.). An international group of experts covers the important aspects of aviation safety.

Aviation in Crop Protection, Pollution and Insect Control by H. R. Quantick (July, $45, illus.). A guide for using helicopters or airplanes in the aerial application of solids and liquids.

Introduction to Internal Combustion Engines by Richard Stone (Aug., $55; paper $24.50, illus.). A first text for students.

Aviation Fuels Technology by Eric Goodger and Ray Vere (Oct., $65, illus.). Contains information on aviation fuels, fuel specifications, engine types, fuel substitutes and prospects.

SPRINGER PUBLISHING

Overcoming Resistance: Helping Difficult Clients with Rational-Emotive Therapy by Albert Ellis (July, $21). A comprehensive discussion of resistance to therapy and techniques to overcome this resistance.

Productive Aging by Robert N. Butler and Herbert P. Gleason (Aug., $25.95). Considers productivity and the positive contributions of older people.

The Male Batterer: A Treatment Approach by Daniel Sonkin and others (Aug., $24.95). Describes a treatment for males who use physical, sexual and psychological violence in their personal relationships.

Widow-to-Widow by Phyllis Silverman (Dec., $19.95). Discusses current research on bereavement and the psychology and problems of widows.

Family Therapy for Suicidal People by Joseph Richman (Dec., $27.95). An aid for professional practitioners drawing on both family systems and psychodynamic approaches.

SPRINGER-VERLAG

The Beauty of Doing Mathematics by Serge Lang (Aug., $19.80). Three dialogues between Serge Lang and a general audience on the true nature of mathematics.

Evolution of Matter and Energy by M. Taube (Aug., $24). A unified description of nature from the elementary particles to the universe as a whole.

Variable Stars by Gerold Richter and Wolfgang Wenzel (Sept., $43). An up-to-date survey for the astronomer, but also an introduction for the well-prepared amateur.

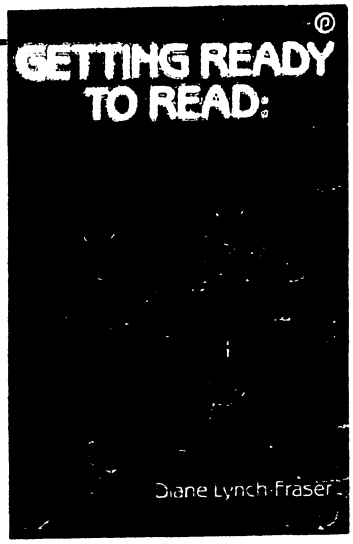
Fundamentals of Neurophysiology (3rd ed.) by Robert Schmidt (Oct., paper $19.95). An introduction to neurophysiology and brain research.

Magical World of Minerals by Olaf Medenbach (Oct., $44, illus.). An introduction to the world of minerals, with 125 full-color photographs.

TAB BOOKS

Basic Electronic Test Procedures (2nd ed.) by Irving M. Gottlieb (Aug., $23.95; paper $16.45). A step-by-step guide for electronic tests and measurements.

Cellular Telephones: A Layman's Guide by Stuart Crump Jr. (Aug., $15.95; paper



Clockwise from left: "Nova National Science Test" and "Getting Ready to Read" (both NAL), "What Went Wrong?" (Gulf Publishing)

$9.65). A guide for the prospective buyer of a car telephone.

Troubleshooting and Repairing Satellite TV Systems by Richard Maddox (Sept., $22.95; paper $14.95). A complete reference with schemas of satellite TV receivers.

The Complete Handbook of Magnetic Recording (3rd ed.) by Finn Jorgensen (Sept., $25). Includes audio, video and digital recording and computer applications.

Basic Electronics Theory with Experiments and Projects (2nd ed.) by Delton T. Horn (Dec., $29.95; paper $16.45). Includes information on many new electronic technologies, such as satellite, cable and pay TV and video recorders.

TEXAS A & M UNIVERSITY PRESS

Mathematical Foundations of Population Dynamics by Guy L. Curry and Richard M. Feldman (Dec., $42.50, illus.). A comprehensive synthesis of mathematical procedures for the modeling of population dynamics.

UNIVERSE

Universe Guide to Stars and Planets by Ian Ridpath (July, $19.95; paper $10.95, illus.). A guide for identifying constellations, stars and planets using only an ordinary pair of binoculars.

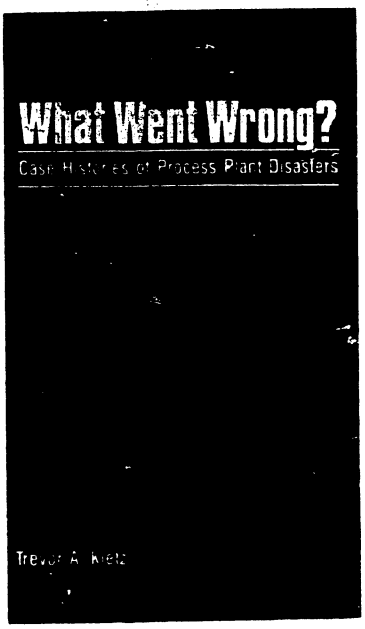
UNIVERSITY PRESS OF NEW ENGLAND

The Atlas of Breeding Birds of Vermont edited by Sarah B. Laughlin and Douglas P. Kibbe (July, $45, illus.). Defines the distribution of the 179 species nesting in Vermont.

Wings in the Sea: The Humpback Whale by Lois King Winn and Howard E. Winn (July, $25; paper $15.95, illus.). A scientific account of the humpback whale for the lay reader.

Bogs of the Northeast by Charles W. Johnson (Aug., $25; paper $11.95, illus.). A presentation of bogs in New England, New York, New Jersey and Pennsylvania.

Wildlands and Woodlots: The Story of New England's Forests by Lloyd C. Irland (Sept., paper $9.95). A nontechnical discussion of issues related to forests, such as



products, policies, ownership and future needs.

Prevention in Health Psychology edited by James C. Rosen and Laura J. Solomon (Oct., $35; paper $22.50). Twenty-six psychology and physical health experts discuss preventive health care.

VAN NOSTRAND REINHOLD

Planetary Ecology edited by Douglas E. Caldwell, Corale L. Brierley and James A. Brierley (July, $57.50). An interdisciplinary approach with contributions from 106 scientists.

Handbook of Magnetic Phenomena for Electronic Engineers by Harry Burke (Sept., $49.50). Discusses magnetic phenomena from Ampere's Law to electromagnetic field theory.

Injection Molding Handbook by Dominick V. Rosato and Donald V. Rosato (Oct., $86.50). Covers all aspects of the technique, including computer-aided design and mold design.

JOHN WILEY

Biology of the Reptilia. Volume 14: Development A edited by Carl Gans (July, $79.95). A comprehensive discussion of the developmental biology of reptiles, including embryology, anatomy, physiology and neurology.

Patty's Industrial Hygiene and Toxicology (2nd. ed.) edited by Lewis and Lester Cralley; Volume 3a: *The Work Environment* (Aug., $95); Volume 3b: *Biological Responses* (Aug., $90). Part of the classic reference for the occupational health field.

Bailey's Industrial Oil and Fat Products, Volume 3 edited by Thomas H. Applewhite (Sept., $55). Contains information on fractionation, winterization, margarine shortenings, specialty fats, deodorization and other areas.

Buildings Systems Integration Handbook edited by Richard D. Rush (Oct., $89.95). A reference with contributions from over 100 building and design experts.

Resolving Marital Conflicts by H. S. Strean (Oct., $28.95). A guide for therapists and counselors.

Paradoxical Strategies in Psychotherapy by M. Seltzer (Nov., $27.95). Outlines new psychotherapeutic tactics for the mental health professional.

YALE UNIVERSITY PRESS

Geological Factors and the Evolution of Plants edited by Bruce Tiffney (Oct., $23.50, illus.). A collection of essays on the interaction of organism and environment as viewed on the paleontological time scale.

The Burgess Shale by H. B. Whittington (Oct., $23.50, illus.). The first comprehensive study of a formation in southwest Canada that is one of the richest fossil records from the Cambrian era.

How to Write a Scientific Paper by Michael J. Katz (Dec., $18; paper $5.95). Takes the reader through every step of the writing process, using a published paper as a guide.

DECLARATION OF CHRIS MOHR

Chris Mohr deposes and says:

(1) My name is Chris Mohr. My home address is 655 Natoma Street, Apartment C, San Francisco, CA 94103.

(2) I work at Tenderloin Neighborhood Development Corp., as the Director of Fund Development. My business address is 201 Eddy Street, San Francisco, CA 94102. I have worked here since April 1995.

(3) I began working at *Physics Today* in or around February 1991 as an assistant editor. I left *Physics Today* in August 1993 to pursue an internship at a non-profit anti-poverty organization.

(4) My immediate supervisors were Barbara Levi, Gloria Lubkin, and Kenneth McNaughton. Terry Braun was the Director of Human Resources.

(5) While at *Physics Today*, I was responsible for editing the "We Hear That. . ." portion of the magazine which consisted mainly of articles about awards and obituaries. Usually, I edited about 5–10 obituaries per month and wrote 1-3 awards' articles per month. I also edited the calendar section of the magazine and copy-edited one to two feature articles per month.

(6) While at *Physics Today*, I wrote some pieces for small magazines, notably *Lies of Our Times* (now defunct). That magazine published one long piece detailing scientists' participation in the Gulf War ("The Gulf War and the Technologists," March 1992), as well as several shorter items. On this article, I spent upwards of 20 hours working on the article, of which at least 15 hours was spent at work. On other pieces I wrote while at *Physics* Today, I would generally write 80% of the article at work, and 20% at home. I did all the writing on my computer at work and read all the source material while at work

because it was based on the scientific magazines and publications received by *Physics Today*. I did this openly and spoke with co-workers about the article. No one ever said anything about my working on this piece.

(7) I also contributed to the monthly newsletter of my religious congregation. This usually consisted of synthesizing different e-mails from a monthly alert group into a short article. I also openly did this work during normal working hours at *Physics Today*.

(8) It was my understanding that AIP, as an institution, encouraged the practice of its employees doing outside writing. The Institute's history department published books of employees which were understood to have been written on company time. To my knowledge the Institute never had a policy against its employees pursuing and publishing writings outside the Institute, and doing such work on company time.

(9) In general, if I completed my responsibilities in a timely way, I was not given additional work to fill my time.

S 000886

VERIFICATION

I hereby verify under penalty of perjury pursuant to 28 U.S.C. § 1746(2) that the statements contained therein are true and correct to the best of my knowledge, information and belief.

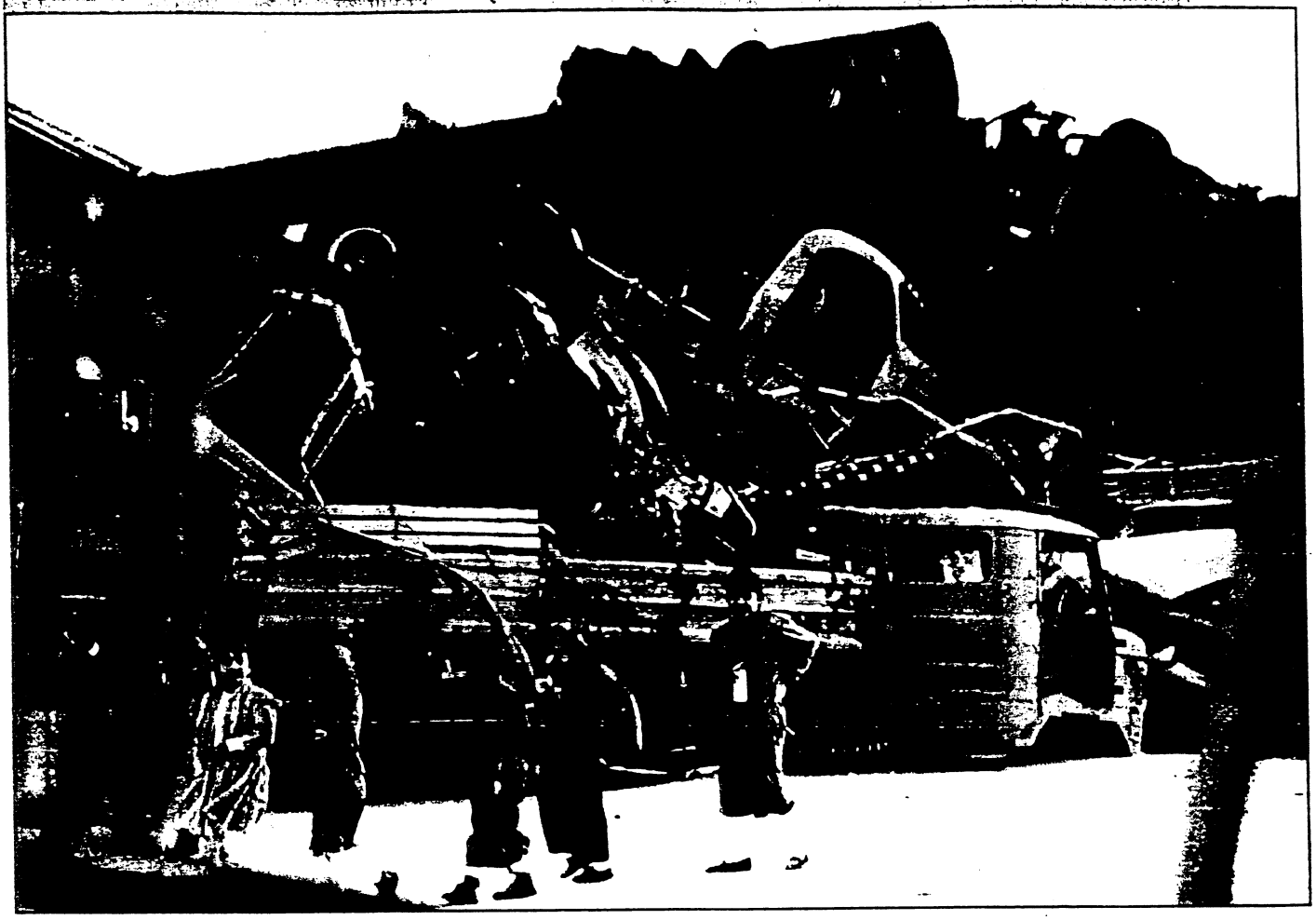
Executed on March 15, 2001.

Chris Mohr

S 000887

Lies Of Our Times

MARCH 1992 A MAGAZINE TO CORRECT THE RECORD $3.00



Souvenir Hunting on the "Highway of Death"

The Gulf War One Year Later

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Sexism at the Times

Cuba, Salvador, Rally for Peace

Contents

Cover: Kuwaiti children walk along "the highway of death." The area, according to the AP caption, is "frequently visited by tourists and locals looking for souvenirs." AP / Wide World Photos.

NOTICE TO SUBSCRIBERS:

Due to an error in the binding of copies of the last issue of *LOOT* (January-February 1992), a large number of copies were bound with a sharply creased cover, causing many to come apart in mailing.

Many subscribers received nothing but the last page of the magazine in their mailboxes; some received nothing.

If you were one of these and have not yet notified us, please call or write and we will ship you a new copy of the issue at once. We apologize for this inconvenience.

We also apologize for the delay in the production and delivery of this March issue. As you may notice, we have commenced using new hardware and software, producing, we think, a clearer, easier-to-read magazine. We hope you continue to enjoy reading *LOOT*.

Lies Of Our Times

A Magazine to Correct the Record

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To Our Readers

Lies Of Our Times is a magazine of media criticism. "Our Times" are the times we live in but also the words of the *New York Times*, the most cited news medium in the U.S., our paper of record. Our "Lies" are more than literal falsehoods; they encompass subjects that have been ignored, hypocrisies, misleading emphases, and hidden premises—the biases that systematically shape reporting. We can address only a sampling of the universe of media lies and distortions. But we hope *LOOT* will go a long way toward correcting the record.

The Gulf War And the Technologists

Chris Mohr

A year after the Gulf War, the technical community that designed and built the weapons of Desert Storm has assessed the performance of their products and concluded that, despite a few flaws, the weapons worked quite well. The evaluations in the professional literature reveal much about the technical culture in the U.S. as well as about the weapons themselves.

Common to these evaluations in engineering, physics and aerospace industry publications is an unquestioning acceptance of U.S. government policy toward Iraq. When policy is mentioned at all, it is solely in the official terms dictated by the government: Kuwait was to be liberated, Saudi Arabia protected, (American) lives saved, and so on. In the literature the war is treated as a technical problem to be solved with the application of weapons technology. In such a context, moral and political questions are irrelevant. The only questions askable involve technology: Did the weapons work? How well? What were their flaws?

A Special Report

One of these journals is *Spectrum*, whose September 1991 issue was a special report, "Gulf Legacy: War as a Test Lab." *Spectrum* is published monthly by the Institute for Electrical and Electronics Engineers (IEEE), primarily for its members, and has a circulation of more than 300,000. With many contributors from the military and military contractors, the special issue shows the culture in which IEEE assumes its readers will feel comfortable. And no wonder: Some 60 percent of federally funded basic R&D is supported by the Pentagon, according to a 1991 National Science Foundation report. And some one-third of all scientists and engineers in this country outside of biomedical fields work on defense projects, according to a September 1991 study by the Carnegie Commission on Science, Technology and Government. For example, the Georgia Tech Research Institute is funded primarily by the military. According to GTRI's 1991 annual report, the U.S. Air Force provided 29 percent of its funding, the Army 24 percent, the Navy 4 percent, and other defense agencies 25 percent—or 82 percent overall. Such is the technical culture in the U.S., as *Spectrum* well knows.

The special issue of *Spectrum* has a great deal more interesting material than can be noted here. However, the IEEE's attitude is best shown by the issue's editors, John A. Adam and Glenn Zorpette, both on staff at *Spectrum*, in their introductory essay: "Differences in leadership and morale counted heavily, but first and foremost was the force of western technological might—before and during the war." That the sheer amount and intensity of western bombing was unprecedented they did not mention. Along the same lines, in an essay entitled "Technology: The edge in warfare," Norman R. Augustine said, "U.S. forces used technology to overcome numerical disadvantages in manpower and material, and to minimize the loss of life among U.S. and allied forces." He warned against cuts in funding for weapons now in development and alerted readers to what he calls "near-fatal obstacles in our hardware acquisition process," which delayed the Patriot missile. Augustine's position is unsurprising, since he is the chairman and CEO of Martin Marietta Corp., which, as he points out, assembles the Patriot under a contract with Raytheon.

Other technologies were less heralded than the Patriot during the war, but were clearly more significant. A new airborne radar system, the Joint Surveillance Target Attack Radar System (Joint Stars), was deployed to track ground targets. As several contributors point out, the Stealth fighter-bombers flew only with support from radar-jamming EF-111s flying behind, so stealthiness is still not fully proven on its own. And Major Tim Gibson, a computer science instructor at West Point, describes the four computerized command and communications networks set up and linked together in the desert. Hundreds of satellite dishes were deployed: within three months the number of users grew from 18 to more than 80.

In perhaps the magazine's most startling essay, Janet Morris, the "research director for nonlethality" at the U.S. Global Strategy Council in Washington, D.C., and a consultant to Lawrence Livermore National Laboratory, where nuclear and other weapons are designed, advocated a new destructive technology called nonlethal weaponry. As a good member of the technical culture, she failed to question why the military needs such technologies. Instead she sold the merits of what could be called New Age weapons. "Technology now offers such options, and they are life-conserving, environmentally friendly, and fiscally responsible," she said. Others would disagree; such weapons could include jellied superacids "potentially millions of times more potent than hydrochloric acid," and polymer agents to choke engines or glue weapons. Apparently such agents would be dumped on tanks or trucks only when their drivers are in the mess hall, where they will not be burned, choked, or glued themselves.

Some Other Examples

Optics and Photonics, the membership journal of the Optical Society of America, confined its attention to a single narrower topic in its war review, the cover story of the November 1991 issue entitled "Electro-Optics in Desert Storm." Electro-optic devices used in the Gulf War provided identification of friend or foe, night vision and other surveillance abilities, obstacle avoidance for low-flying helicopters, and chemical agent detection. The article's three authors, B.D. Guenther, R. Buser, and W. Morrow, work for various labs run by the Army, and they explicitly identify with the military: "The success of the Coalition's electro-optic systems demonstrated the need to preserve our technological lead. The problems encountered uncovered the need for future development of improved electro-optic capability to support our distinguished military forces." By publishing such pieces, the Optical Society becomes an advocate for the military rather than simply a neutral professional organization.

The October 21, 1991, issue of *Aviation Week and Space*

Chris Mohr is a writer and editor in New York City.

Technology featured 29 articles on the cover topic, "Mixed Signals for Electronic Warfare." *Aviation Week*, published by McGraw-Hill for aerospace industry professionals and other interested readers, features military topics as part of its regular coverage, so this issue is not especially unusual.

And the writers, who are employees of the magazine and not the military, aim to give a fair assessment of "electronic warfare," including past failures, recent successes, and possible future cutbacks. Still, the lead essay by the issue's editor, contributing avionics editor Philip J. Klass, is positive about the war: "The recent Persian Gulf conflict served as a showcase to demonstrate the effectiveness of a variety of electronic warfare techniques developed since tactical aircraft first encountered Soviet radar-guided missiles 25 years ago in Vietnam." Notice that Klass describes a conflict between weapons, not a war fought by people.

AP / Wide World Photos

U.S. soldiers surround Iraqi who surrendered because, the AP caption said, "he feared the Kuwaiti army.... The Americans turned him over to the Kuwaitis...."

Of the professional magazines I surveyed, only one, *Technology Review*, attempted to look at some of the larger questions absent from the others. *TR* is published by the MIT alumni association. The May/June 1991 issue featured a lengthy article by Michael T. Klare, an associate professor at Hampshire College and the director of the Five-College Program in Peace and

Tourists as Targets

In "Tourists, the Peacetime Target of a Shipful of Military Magic" by Douglas Martin (*New York Times*, January 10, p. C1), the entire space above the fold of the "Weekend" section's front page was taken up by a picture of planes and tourists on the deck of the Intrepid Sea-Air-Space Museum, the war museum on the old aircraft carrier in the Hudson River.

The article's tone was breezy: Martin wrote that a submarine "is only one of tons and tons of military attractions at the Intrepid," and gushed, "There is so *much* to see [his emphasis]." He parenthetically considered the two cannons aimed at midtown Manhattan as "not necessarily a bad idea." Following his example, the reader could conclude that weapons are to be giggled at, what with "the cold war rapidly becoming a piece of nostalgia," as he phrased it.

Martin must not read the paper's front section. He failed to connect the presence on the Intrepid of parts of the types of missiles used "to punish Iraq" with the ongoing wars in the world and the continuing militarism of the U.S. government.

In case the reader still had not understood, near the end of the article Martin wrote, "But go see for yourself, particularly if the unexpected boredoms of peace are weighing a tad heavily. The Intrepid takes you back to boom-boom, John Wayne, and simple values that, when all is said and done, have kept the United States alive and kicking like a colt for almost 216 years." Perhaps this was meant ironically, but it is more likely simple grandstanding and cheerleading for the U.S., as well as a lament for the simpler days of the Cold War, before all this boring peace broke out.

Not all of us see the Intrepid so giddily.

During the Military Book Fair held on the Intrepid May 31, 1991, a group of Quakers from Manhattan staged a vigil for peace there, holding signs with slogans such as "Publish for peace or perish by war." For four hours under a blazing sun, we stood as busloads of children and handfuls of editors and writers passed by. The security guards asked us several times to move, but they never called the police despite threatening to do so. A German couple—the sort of tourists the headline was aimed at—had seen the shiny planes on deck from afar and wanted to go aboard for a closer look. Our presence deterred them, though, as they were really for peace, and they left without going in.

Martin's article says quite a lot about how the *Times* would have us view the world, even in our own backyard. An article on a local tourist attraction becomes an occasion to gloat about how this country acted to "punish Iraq," to suggest that peace is here and it's boring (both questionable assertions), and to celebrate John Wayne and militarism.

—C.M.

World Security Studies, on evolving military strategy in the wake of the Gulf War. Primarily he details the military's current doctrine, called "mid-intensity conflict" to distinguish it from "low-intensity conflict" of Central American and African wars and "high-intensity combat" of all-out war.

Klare wrote, "Like Desert Storm, future mid-intensity conflicts are likely to be rapid-paced and high-tech, entailing unrestrained use of the most sophisticated weapons. In essence, the United States will fight rising Third World powers by wielding weapons designed for war with the Soviet Union." By critiquing policy, Klare violates the rules of technical culture, but he is not in fact a technologist.

The Humane Engineer

In the July 1991 issue, *TR* did, however, carry an essay called "Engineers and the Nintendo War" in the column "The Humane Engineer." Its author, Samuel C. Florman, a writer of several books including *The Civilized Engineer*, said,

> Operation Desert Storm differed from previous wars by revealing in our society a heightened concern for individual human lives. How striking it was that President Bush, General Schwarzkopf, and other political and military leaders shied away from talk of killing. There was not only an unprecedented effort to minimize the casualties—at least among the allies—but also a studied determination to avoid discussing them. There was death and suffering aplenty, but, perhaps for the first time in the history of war, nobody wanted to talk about body counts.... Our leaders carefully crafted their Desert Storm pronouncements to reflect the concerns of a citizenry that wanted war but not bloodshed.

With all due respect to Florman, the past does provide examples of regimes that avoided talk of body counts. Such government behavior is usually called propaganda and covering up, but Florman apparently cannot believe that of his leaders. Fortunately, *TR* published a letter by Joel Weisberg, a physicist at Carleton College, in the November issue that corrected the record: "That this slaughter was barely mentioned in the media amidst the heroic chest-thumping shows how little value we place on human lives," Weisberg wrote.

TR also printed a lengthy interview on the U.S. space program with Martin Marietta's Augustine in the August/September 1991 issue. Here it said, "Probably no other aerospace executive commands such respect from diverse quarters." So despite its greater openness, even *TR* maintains its respect for the defense establishment.

Conclusion

This survey illustrates the way the technical culture works to evaluate problems on the terms dictated to its members by their employers. Perhaps the culture could change for the better if we managed to get the technologists to think more about the policies that drive their work. Then perhaps some of them would refuse to use their creative, technical talents for the pursuit of lopsided wars, and fewer of them might contribute to the system's propaganda. •

Sins of Omission

The Ustica Affair

On June 12, 1980, an Italian civilian airliner crashed at Ustica, Sicily, as it neared Palermo, killing all 81 persons aboard. Since that time there has been debate in Italy about the circumstances of the disaster, a widely held view being that the plane was shot down and that there has been an official cover-up of the facts. One further hypothesis, discussed for years and supported by evidence (see Flaminia Cardini, ed., *Ustica: la via dell'ombra*. Sapere due mila, 1990), is that the downing occurred as a result of miscalculations in an attempt by Free World forces to assassinate Libyan leader Muammar Qaddafi, who was scheduled to fly on an airliner in the close vicinity of the destroyed Italian plane. (A Libyan MIG was shot down in the course of the same incident.)

With an Italian film on the crash and its coverup ("*Il Muro di Gomma*," or "The Rubber Wall") now receiving substantial publicity in Rome, the *New York Times* finally deigned to recognize the event (Alan Cowell, "Italian Obsession: Was Airliner Shot Down?" February 10, 1992, p. A7). Several elements of the *Times* rendition of the story are notable. First, the issue is categorized as an "obsession," which puts it in the class of the irrational (in contrast with U.S. "concern" over Libyan "terrorism," etc.). Second, the cover-up is described as "purported," although the *Times* account does go on to note that "successive inquiries" have charged a coverup and that investigating magistrate Rosario Priore warned air force officials in January that they face charges of treason and obstructing justice if they continue to fail to supply information.

The third point of interest is that nowhere does Cowell or the *Times* mention the hypothesis that this tragic error may have been a result of an attempt to murder Qaddafi. Accusations against Qaddafi are reported freely in the *Times*, but an attempt to kill him by the United States and its allies may be reported only when admitted by the western authorities themselves.

—Edward S. Herman

Fear of Terrorism or "Anti-Terrorism"?

In April 1991, following four political assassinations within a month, the Aylwin government of Chile announced plans to form an "anti-terrorism" unit. As reported in the *New York Times*, the important news associated with this announcement was the assassination of rightwing Senator Jaime Guzman and his funeral, attended by Aylwin and Pinochet; the "outcry against terrorism"; and the question of whether the government would have the will to fight terrorism. The article closes with a long quote by a Guzman associate doubting "that the government is capable of handling terrorism" (Nathaniel Nash, "Chileans Plan Anti-Terror Drive," April 5, 1991, p. A6).

In the *Financial Times*, an entirely different focus is evident in the title of their article: "Chilean fears over anti-terrorist unit" (Leslie Crawford, April 16, 1991, p. 6). It features the pressure of Pinochet and the army, "lobbying hard to be included in a new

The Associated Press

June 9, 1989, Friday, AM cycle

SECTION: Business News

LENGTH: 512 words

HEADLINE: Some Scientists in Review Article Call 1986 Explosion a Nuclear Blast

DATELINE: CAMBRIDGE, Mass.

BODY:
The nuclear industry said it couldn't happen, but some scientists now believe the 1986 accident at the Soviet Union's Chernobyl power plant exploded like an atomic bomb.

An article in Friday's Technology Review, a journal published by the Massachusetts Institute of Technology, says similar accidents could happen at 13 other nuclear reactors in the Soviet Union.

However, "the possibility of such an accident in a U.S. reactor is vanishingly small," wrote **William Sweet,** a reporter for **Physics Today,** published by the American Institute of Physics.

Sweet gathered his information in interviews with scientists and specialists at the Nuclear Regulatory Commission and the U.S. Department of Energy.

"A runaway nuclear reaction set off a chain of events that severely damaged the reactor core and surrounding structures," Sweet wrote.

"This damage set the stage for a second explosion which was much more violent than the first and almost certainly was a full-fledged nuclear explosion."

Some scientists say the article accurately reports current thinking, but others say it is causing unnecessary alarm.

S 000893

"To call this a nuclear explosion is very misleading," said Themis Speis, deputy research chief at the NRC.

"The reactor went out of control, but the time it took to raise the temperature and pressure is many orders of magnitude smaller than it takes to get an atomic bomb going," he said.

John Ahearne, former NRC chairman, said, "I wouldn't call it a nuclear explosion."

Harvard University physics Professor Richard Wilson said in the article, "It was a nuclear explosion; there's no doubt, because the ultimate source of energy was nuclear.

"To ever say it was not a nuclear explosion is just plain wrong."

The argument is one of semantics, said Gregory Van Tuyle, a nuclear engineer at the Brookhaven National Laboratory.

The plant was not destroyed by a steam explosion as scientists had believed, but "power grew to very large levels very rapidly," he said. "The phrase 'nuclear explosion' is not inappropriate."

The accident, blamed for the deaths of at least 31 people, injured many more and spread radiation for thousands of miles.

Sweet acknowledged that the reactor at Chernobyl "exploded" far more slowly and with much less energy than a bomb. But, he said, official reports suggest the reactor's fuel formed a critical mass, reacted uncontrollably, melted and vaporized.

It "would be deeply misleading to say that the plant did not blow up like an atomic bomb," he said.

"Ever since the first nuclear power plants were built in the 1950s, the industry has insisted they can't explode like bombs," Sweet said. "Chernobyl casts doubt on whether that is true of all power reactors.

"Of the plants operating in North America, however, only the Canadian plants are susceptible to a Chernobyl-type accident."

In an interview Friday from his New York office, Sweet explained that a Chernobyl-type accident is unlikely in the United States because U.S. commercial reactors use a different type of moderator and have a safer design. WILLIAM SWEET (94%);

MARLOWE HOOD

U.S. must block Khmer Rouge bid

DESPITE CLAIMS of having backed away from diplomatic support of the Khmer Rouge, the United States government is persisting in an old Cold War policy that benefits the still-powerful remnants of Pol Pot's genocidal regime. Last July, the Bush administration withdrew recognition of Cambodia's U.N. seat, ostensibly because it was occupied by a coalition that includes the Khmer Rouge.

Since then, however, the United States has not only backed a U.N.-sponsored "comprehensive political settlement" that would give the Khmer Rouge equal status in a transition government, it has helped to block amendments to the U.N. plan designed to prevent their return to power.

Pol Pot inaugurated his deadly regime on April 17, 1975. By the time Vietnam routed him 44 months later, the Khmer Rouge had dispatched 15 percent of Cambodia's population — a million people.

The architects of this unparalleled criminal achievement should, as Nobel Peace Laureate Elie Wiesel has suggested, be tried in the International Court of Law for crimes against humanity. But inviting Pol Pot's associates into a reconciliation government is not only a moral outrage. It is a decisive step toward renewed disaster.

Of the two reasons usually advanced for including the Khmer Rouge in the tripartite Cambodian resistance and the U.N. settlement, one is obsolete and the other unconvincing.

IT IS TRUE that Pol Pot's army has been the only indigenous force capable of pressuring Hanoi to withdraw its army. Coalition partner Norodom Sihanouk, who ruled Cambodia from 1954-70, has prestige but little muscle. The third member, former Prime Minister Son Sann, has neither.

But since Vietnam pulled its soldiers out, and the Phnom Penh regime of Prime Minister Hun Sen agreed in principle to U.N.-supervised free elections, the Khmer Rouge has become simply an instrument of torture.

Asserting that the Khmer Rouge will be easier to control inside a transitional leadership body misses the point. As long as China is allowed to send cash and arms — most recently tanks — the Khmer Rouge will continue to cause trouble. Are we to trust China and its client to respect election results and adhere to U.N. proposals that would ban external support and require laying down arms? China has strong incentives to maintain the status quo. Khmer Rouge defectors and confiscated documents leave no doubt that Pol Pot is still in charge, his ideology intact.

Cambodia's only chance for peace must begin with the dismantling of Pol Pot's monster through a total international embargo.

Only the United States has the clout to pressure China to abandon its hideous proxy. But Washington has scuttled every initiative to forge a solution that not only prevents Vietnam from interfering with elections, but isolates the Khmer Rouge as well. The State Department rebuffed recent pleas by Sihanouk to back him if he breaks from the Khmer Rouge, and it rejected a Japanese proposal last month calling for the formation of an international committee to investigate Khmer Rouge crimes during their rule, and for an immediate cease-fire.

AS IT STANDS, the U.N. draft agreement refers vaguely to the "non-return of the policies and practices of the past," and postpones a cease-fire until after the document is ratified. That has led to intensified fighting.

Vietnam and the Hun Sen regime are desperate enough to join the developing world to risk a Nicaraguan outcome to supervised elections, but have justifiably balked at the U.N. settlement being foisted upon them.

At a negotiating session next month, Hun Sen will press for strong measures for disarming the Khmer Rouge and a specific provision preventing their return to power.

There is still time for the United States to do the right thing, and act to isolate, rather than accommodate, the Khmer Rouge. Only then will what Sihanouk has called "the most unfortunate, the most unhappy and the most humiliated people in the world" know that the killing fields are gone forever.

Marlowe Hood is co-editor of "The Cambodian Agony" and a visiting scholar at Columbia University's East Asian Institute.

13 Mar. 01, called the South China Morning Post. The current circulation is 108,626 per day. Ten years ago it was about 109 000.

Education Review
11 December 2000

An abridged version of this review appears in the March/April 2001 issue of *The Adjunct Advocate* (circ. 60,000)

Disciplined Minds

Reviewed by Andi O'Conor

***Andi O'Conor** is Assistant Professor of Cultural Studies in the Department of Educational Studies at Ohio University. She is currently studying the relationship between masculinities, peer group relations, and school violence. Her research interests include critical qualitative studies of gender, queer theory, and radical theories of education.*

Disciplined Minds is a radical, disturbing, and provocative look at professional life. It offers a profound analysis of the personal struggles for identity and meaning in the lives of today's 21 million professionals. The book will shake up readers, particularly faculty members, graduate students, and others who participate in academic life.

This book represents critical theory in the best sense of the tradition: it is a well-written, compelling description of how graduate school, as well as professional training and practice, help reproduce social, political, and economic stratification. Luckily, this book also offers disheartened graduate students, soul-weary professors, and frustrated professionals a better understanding of the structural conditions that constrain their professional work, and ways to combat the conformity that is endemic to academic life.

Schmidt begins by discussing what he calls "widespread career burnout" among professionals—the chronic "workaholism," fatigue, isolation and depression common among many professionals today. "Professionals," he writes, "are not happy campers ... Ironically, such depression is most likely to hit the most devoted professionals—those who have been the most deeply involved with their work. You can't burn out if you've never been on fire" (pp. 1-2). The hidden root of this burnout and depression, Schmidt contends, is the professional's lack of political control over his or her creative work. In addition, the dissonance between the early goals of many professionals (e.g., to make a difference, to pursue a social vision, to better oneself and society) and the relative powerlessness of professional practice creates disillusionment. According to Schmidt, graduate and professional schools are intellectual "boot camps" that systematically grind down students' spirit and ultimately produce obedient, rather than independent thinkers.

Timid Professionals

In Part One, "Timid Professionals," Schmidt outlines his basic thesis, that university professors, executives, and other professionals are trained to reproduce the inherently conservative and non-questioning ideology of large corporations, universities, and government agencies. Rather than fostering creativity, autonomy, and personal empowerment, professional schools create a skilled group of individuals who learn to subordinate their own goals to the goals of the institution. He claims that professional training produces "servants, not critics" (p. 175)

To qualify for professional training and employment, individuals must exercise what Schmidt calls "ideological discipline," the ability to approach work with creativity and enthusiasm, but without questioning or seriously challenging the overall conservative and socially reproductive goals of the institution or employer. He writes, "The resulting professional is an obedient thinker, an intellectual property whom employers can trust to experiment, theorize, innovate, and create safely within the confines of an assigned ideology. The political and intellectual timidity of today's most highly educated employees is no accident." (p. 16)

One intriguing aspect of this book is Schmidt's definition of the commonly used but rarely defined word, "professional." He cautions against confusing the term with "white collar worker," and claims that most white collar workers today are non-professionals. He categorizes lawyers, teachers, counselors, nurses, doctors, engineers, scientists, professors, actors, and executives as professionals. He excludes from his definition of professionals those who hire and fire professionals (e.g., upper level-executives) as well as para-professionals such as clerical workers, paralegals and teachers' aides. What distinguishes a professional, he claims, is not just advanced knowledge and technical skill, but advanced *schooling* or "paper credentials." Professionals are a product of the schools.

Schmidt challenges the popular belief that professionals are independent practitioners, such as self-employed doctors or lawyers. He writes that the overwhelming majority of professionals (i.e., 8 out of 9) are salaried employees rather than independent practitioners. Thus, when writing about professionals, he has salaried employees in mind.

Schmidt also critiques the widespread belief that today's professionals embody neutrality. Arguing that professionals are indeed politically committed, Schmidt writes, "Many people naively think of professionals as nonprofessionals who possess additional technical knowledge or technical skills. Professionals do exercise technical skills, of course, but it is their use of political skills that distinguishes them from nonprofessionals. The product of professional labor is political. It takes sides." (p. 41)

From Schmidt's perspective, professionals' own view of *themselves* as politically neutral supports their political commitments. By posing as disinterested experts, professionals actually serve the

interests of the dominant class.

Schmidt also examines popular misconceptions about professional work. In the section, "Assignable Curiosity," he demonstrates that professionals—university professors in particular—have much less control over their own research than is generally thought. He describes how the needs of major corporations and government agencies drive university research. In particular, he discusses the profound influence of government grants in determining what researchers choose to study.

Another popular and powerful notion that Schmidt refutes is the belief that more highly educated people tend to be more creative, independent, and liberal. In making this argument he draws an important distinction between being conservative or liberal in one's personal beliefs, which have little social impact, and being conservative or liberal in the beliefs one acts upon at work. The latter, Schmidt contends, have the greatest social impact, and it is in this arena that many seemingly liberal and left- leaning professionals (such as university professors) are surprisingly conservative. Claiming that the academy is an essentially conservative institution, Schmidt cites the Chronicle of Higher Education finding that only 5% of professors identify themselves as "radical" or "left" of the political mainstream.

Examining the Examinations

Central to the production of ideologically correct professionals are mechanisms for selecting and excluding candidates for the programs that eventually qualify individuals for professional work. In the chapters, "Ugly Scene at the Narrow Gate," "Examining the Examination," and "Gratuitous Bias," Schmidt provides an in-depth look at the ways professional workers are selected.

The first of the selection mechanisms is the process by which students are chosen for admission to graduate programs and to advanced stages of graduate study. In particular, Schmidt focuses on the standardized tests administered prior to admission to graduate school and the comprehensive faculty-developed tests administered in order to admit graduate students to advanced course work or dissertation candidacy.

He explains that tests, rather than assessing knowledge and creativity, actually measure students' ability to alienate themselves from authentic learning. Students who take the time to reason out problems in a creative way often fail to perform well on timed, standardized tests. These tests tend to privilege rote memory, speed, and close interpretations of text. According to Schmidt, standardized tests serve to screen out students who have "inappropriate" values or inadequate "ideological discipline" (p. 170)

The tests' instructions to pick the "best" answer means that the

successful student is the one who either shares the testers' values or senses those values and adopts them for the examination.... This unconscious ideological discipline that the latter approach represents is the preprofessional's first step toward the more developed ideological discipline that characterizes the professional. (p. 170)

Schmidt claims that faculty members typically use comprehensive exams, which are usually not standardized, to "weed out" unsatisfactory students—those who delve too deeply into a particular topic, don't show enough "general knowledge," or answer questions in ways that professors deem unsuitable. Citing the field of physics in particular, Schmidt tells the story of one student who was dedicated to making his comprehensive examination a creative and useful experience. Unlike most students, this student studied books rather than old tests. He studied creative and non-traditional ways to solve traditional physics problems. Rather than being rewarded for his devotion to learning, he failed the exam, was subsequently barred from registering for classes, and was fired from his job as a teaching assistant.

From Schmidt's perspective, students who perform well on standardized tests and comprehensive exams demonstrate that they are willing to "jump through the hoops" of graduate school. These students are willing to spend time and money preparing for standardized tests in order to gain entrance to graduate programs. Once admitted, they are willing to spend hundreds of hours studying for comprehensive exams on which they hope to provide answers that are pleasing to their professors. Schmidt claims that studying for comprehensive exams in graduate school serves as important preparation for other types of marathon efforts later in the professional career. He quotes a tenured professor of physics, who explained that the important qualities of a physicist are "discipline in work and tenacity to stick to problems" rather than technical knowledge or creativity. Thus, the testing system tends to favor the students who will eventually make the most "manageable employees—students with a subordinate attitude and mainstream values" (p. 160)

Graduate School: Cult Indoctrination?

One of the most compelling and provocative discussions in the book is the author's examination of the experience of graduate school. In this examination, Schmidt draws parallels between graduate school programs and cult indoctrination. Elaborating the thesis that professional schools serve more to indoctrinate than to teach technical skills, Schmidt details how graduate students are subjected to crushing reading loads, mindless grunt work in labs, and mind-numbing tasks of memorization. In addition, he describes the ways that students' experiences resemble those of individuals being initiated into a cult. Like new cult members, graduate students are often isolated from friends and family, they are placed in the hands of an elite group of "experts," whose judgments they must accept uncritically, and they are asked to devote nearly all their time and

energy to "the cause."

Drawing on data from his interviews with graduate students, Schmidt identifies themes common to both the cult and the graduate school experience:

- Big Promises (recruitment promises and dreams of increased power and independence);
- Milieu Control (lack of outside social life, long working hours for little or no pay, little or no time for critical examination of the group's ideology);
- Unquestioned Authority (inability to challenge the opinions and practices of the experts in charge);
- Guilt Tripping and Shaming (members come to believe they are unworthy, both personally and professionally);
- Total Personal Exposure (exposure of all details of the member's life to the group);
- Scientific Dogma (the use of "sacred science" to legitimate the group's core values);
- Taking Away True Self-Confidence (belief by those in charge that the initiate's self-confidence stands in the way of his or her total commitment to the group); and
- The Only Path to Salvation (graduate school or the group is the individual's last chance for a better life.)

Schmidt does point out that professional training is not *always* like cult indoctrination. For example, he describes his own graduate experience as a "great and rewarding time" (p. 219). While acknowledging the positive features of his graduate study, Schmidt notes that many other students in his program "emerged looking and acting like broken versions of their former selves" (p. 219)

Resisting Indoctrination

In the final section of the book, Schmidt turns to the question of resistance. He discusses how graduate students, professors, and other professionals can resist the conformity of professional life. In the chapter titled, "How to Survive Professional Training With Your Values Intact," Schmidt draws on an unlikely source—the US Army Manual used to teach potential prisoners of war how to resist indoctrination. He writes, "In graduate school, as in the POW camp, the toughest struggle is not over whether you will survive the process, but over what sort of person you will be when you get out" (p. 239)

Key to resisting indoctrination, writes the author, is organizing. The students he interviewed who successfully survived graduate-level professional training did so because they agitated for change, developed social and psychological supports outside of the institution, and spent time with like-minded individuals and groups. According to Schmidt, students who try to resist the system on their own are rarely successful, usually succumbing to pressures to change their own values and practices.

The final chapter, "Now or Never," outlines how professionals in all fields can maintain a sense of integrity and purpose within the mainstream workplace. As Schmidt points out, making a difference and working for social change do not require one to be employed by a non-profit, reform-oriented organization. What they do require, however, is that one take a stance as a "radical professional "(p.265). Such a professional continually critiques the social role of the institution and system for which he or she works. In addition, radical professionals understand and question their place as workers within a conservative system, and they refuse to buy into the mystique of the independent, self-directed professional. To remain a radical professional requires ongoing effort, one that incorporates a variety of strategies, such as dropping the use of elitist titles (e.g., "Doctor" and "Professor"), building coalitions between professionals and non-professionals, and reading non-mainstream and radical journals.

Reproduction and Resistance

Schmidt offers a powerful examination of the relationship between professional life, professional schooling, and the perpetuation of social and political hierarchies. Its arguments unmask the subtle conservatism and indoctrination endemic to professional training as well as to professional employment. Ultimately, the book succeeds in laying out a strong case for the radicalization of professionals. Whereas most critical studies of education focus on social reproduction in elementary and secondary schools, Schmidt's analysis examines how these mechanisms play out in graduate education and induction into the professional career.

As with many analyses based on social reproduction theories, Schmidt's examination tends to over-generalize. He does include some examples of student experiences from other fields, but by basing his observations largely on just one field (i.e., his own field of physics), he seems to imply that all graduate education is equally conservative, demanding of personal compromise, and inhospitable to a diversity of views.

The book would also benefit from the inclusion of other voices. I wanted to hear from graduate students in disciplines other than physics, and I was looking for narratives about resistance. In particular, I wanted to hear stories from students who had resisted the system completely and chosen different paths altogether.

These are minor points, however, compared to the central weakness of the book, namely Schmidt's failure to address questions of methodology. Although he uses powerful examples presumably collected from interviews with students, Schmidt never explains how he went about collecting this information. Despite the fact that the book was intended for a mainstream audience, the author still should have provided some discussion of the theoretical framework guiding his work and the methods used to accomplish it.

Another problem is Schmidt's inattention to the actual experiences of practicing professionals—both those who conform and those who resist. While providing examples of how students resist conformity in graduate school, he seems to ignore examples of how currently employed professionals offer resistance. This important oversight leaves the reader with the impression that all professionals are hapless cogs in the machinery of social reproduction. Discussion of the types of resistance undertaken by practicing professionals would have offered support for the recommendations presented at the end of the book.

Finally, Schmidt's analysis would have been improved if it had drawn on relevant theory. For example, he might have used feminist theory to consider the ways marginalized groups in the academy have resisted domination. Work by feminist philosopher, Jane Roland Martin addresses some of these issues quite poignantly. Schmidt would have strengthened his arguments by connecting them to related theoretical interpretations offered by feminists such as Martin or neo-Marxists such as Jean Anyon.

Despite some significant weaknesses, *Disciplined Minds* still offers a powerful analysis of the impact of professional work on our minds and hearts. Moreover, Schmidt offers concrete suggestions helpful to fellow travelers who feel trapped by "the system." These suggestions enable us to reaffirm and act upon the original commitment we made to use our life's work to promote social good.

15 October 1997
Charles Harris

A Modest Proposal

Background

At our retreat last year at the Belmont Manor, it became clear that the editorial staff was divided. Those that have been at the magazine the longest and who have had the greatest opportunity to shape the magazine as it exists today, tend to prefer more hierarchical management with commensurate job titles that reflect this order. To the credit of members of this group, the magazine has maintained high standards of accuracy and balance. The magazine and AIP have seldom been embarrassed—no cold fusion Mickies in our drinking glasses—but the price is often a more protracted editing process and leaden rhetoric. This group feels the present structure ensures the integrity of the magazine, and any change—especially any collective effort by less experienced members of the staff—is reckless and threatening to all they work hard to maintain.

Those that have joined the staff more recently prefer a more democratic, participatory style of management. They feel that more entrenched members of the staff exercise a disproportionate influence on the magazine, keeping PHYSICS TODAY from adjusting in style and content to physics today. They feel their own ideas are often squelched, either directly or through the outside review process. The result is diminished enthusiasm for the job. People adjust their relationship with the enterprise. They either become more reticent or go away.

"What is to be Done?"

Vladimir Ilyich Ulyanov

How do we reconcile these differences? How do we maintain the authority of PHYSICS TODAY but develop a *dolce style novista*? How do we make sure new staff members are given

the opportunity to help shape the magazine, but are also provided a safety net? Whether we resent it or not, PHYSICS TODAY is still the prime reason for membership in our member societies, and as Kumar Patel has pointed out, any change in PHYSICS TODAY makes our member societies very nervous. Witness the task force that has just been formed at APS to evaluate PHYSICS TODAY.

Anyway, after a lengthy conversation with Graham Collins and some subsequent speaks with Steve Benka, here are some suggestions that I came away with that should improve our working environment and might even produce a better magazine:

- Monthly general meetings. My record on this is not good, but I think we now have a simple mechanism to insure they take place: schedule the next one at the end of this one. All of the staff are expected to attend. They last two hours. Anyone can suggest items for the agenda. The group determines the agenda, but time limits must be set. The majority must be mindful of the rights of those holding minority points of view. Decorum must be courteous and respectful. Issues that cannot be addressed or resolved within allotted time limits may be held over to future meetings. Management must always reserve the right to make final decisions, but must be mindful of the collective will of the staff.
- Basic rules of conduct. No biting, no rabbit punches, no hitting below the belt, no disruptive behavior, no individual or collective intimidation. While we can't guaranteed life employment—performance reviews are still the responsibility of those with management responsibilities, and continued employment is based on satisfactory performance—the staff should be free to engage in constructive criticism and discussion without fear of retribution.
- Polled responses to new ideas and suggestions. We do it for cartoons; why not do it for

the more serious stuff? When departments, comprised of more than one, meet to discuss issues, why not poll all the members of the group to insure that their opinions are known. If the group is divided over an issue and it cannot be resolved, it can be an item on the agenda of our monthly general meeting.

Disciplined Minds: A Critical Look at Salaried Professionals and the Soul-Battering System that Shapes their Lives (Rowman & Littlefield, 2000) by Jeff Schmidt

Public Citizen News
September/October 2000
Volume 20, number 5, page 15
Published by Public Citizen
(founded by Ralph Nader)
ISSN 0738-5927

Recommended reading . . .

Closed Minds

Recommendation by Carrie Crystal Van Driel

Professionals within our society are considered the most able, those who make things happen. But as Jeff Schmidt notes in his book *Disciplined Minds*, these over-trained doers are really just products of what corporate America is looking for -- people who will do the job as trained without challenging the system.

Schmidt focuses on the idea that not only do employers look for people who are technically trained but also people who are trained to go with the flow without rocking the boat or questioning authority.

Written for professionals and students looking to become professionals themselves, *Disciplined Minds* provides an insight into a world where creative minds are subdued. Through first- and second-hand experience, Schmidt analyzes the true meaning of being a professional and the sacrifices that professionals make to achieve their career goals. He challenges them to think outside the box -- to use their intuition and their attitude to provide for a better society.

Witnesses differed markedly on their assessments of the government's current vulnerability to a cyber-terror attack. McQueary noted that the federally funded CERT Coordination Center at Carnegie Mellon University has successfully countered past attacks. Moreover, Colwell suggested that firewalls, initially developed by the DARPA, have for the most part protected networks.

Bement however said firewalls are still penetrated because they fail to always recognize an attacker. A determined cyberterrorist or hacker would be able to defeat many of the government's current security systems, he maintained.

Security is even more of a problem outside the government, Bement said, but not because of a lack of technology. "As a nation, our greatest vulnerability is indifference," he said. Surveys show that industry doesn't view itself as a target for cyberterrorism.

The electrical power grid, for example, is vulnerable to attack through the countless remote control devices known as SCADAs (supervisory control and data acquisition), many of which are operated over the Internet.

Rep. Vernon Ehlers (R-MI), a physicist, complained that too much military R&D continues to be devoted to fighting the last war, when the real danger is from terrorism.

Boehlert agreed. "We have to redefine what war is," he said. "The next war may be fought on computers."

Nonprofit Paychecks: The American Institute of Physics

An amalgamation of 10 professional societies within the discipline, the American Institute of Physics (AIP) is one of the major nonprofit publishers of scientific literature. In addition to eight of its own physics journals, it produces—at cost—some journals for its member societies. Sales of AIP journals, which also include the monthly magazine Physics Today, *contributed $46.2 million of the institute's $66 million in total revenues for 2001, while another $5.8 million came from advertising.*

The publishing arm has thrived in the continued slumping economy. Sales actually rose from the previous year's $43.9 million mark, while advertising revenues were up modestly too.

Despite publishing's contribution, AIP overall had a small operating loss of just under $500,000 in 2001. In 2000 the institute had an excess (profit in the commercial world) of $13 million. The salary of AIP's executive director, Marc Brodsky, moved in the opposite direction. He was paid $316,342, plus benefits of $32,430, in 2001, a nice increase from the $296,667 and benefits of $31,882 he received in 2000.

Darlene Walters, senior vice president for publishing, got almost as much as Brodsky —$299,886, and benefits of $37,312. Her pay in 2000 was $268,364, with benefits of $36,594.

The figures are taken from AIP's annual return on IRS Form 990, which is required of most tax-exempt organizations. The returns are open to public inspection. The AIP's 2001 return was filed last November, following routine extensions.

Other top officers listed on AIP's Form 990, their pay and benefits, and comparable 2000 figures, are as follows:

- James H. Stith, physics resources, $161,716, $31,268; $159,368, $30,015.
- Richard Baccante, treasurer and chief financial officer, $170,798, $35,294; $157,702, $33,303. Separately, Baccante received another $20,000 in salary from the AIP subsidiary American Center for Physics Inc. in 2001.
- Theresa Braun, vice president of human resources, $155,300, $27,445; $146,700, $26,569. Braun's compensation also lists $19,200 for "expense account and other allowances" for 2001 and $18,587 for 2000.
- Benjamin Snavely, secretary (part-time), $40,100, $3,068; $37,923, $2,901.
- John A. Armstrong, chairman (part-time), $24,000, no benefits in both years.

Four of the five top-paid AIP executives other than officers and board members are involved in the publishing operations. Their salaries, benefits and 2000 comparable figures are as follows:

- James Donohue, director of publishing services, $175,200, $34,601; $158,262, $33,464.
- Randolph Nanna, publisher, magazine publishing group, $165,273, $32,135; $171,330; $16,989.
- Timothy Ingoldsby, director of business development, $165,100, $28,983; $132,106, $27,538.
- William Filaski, director of publishing services, $131,250, $30,501. Filaski didn't make the top five list in 2000.
- Richard Kobel, director of advertising and exhibits, $127,292, $23,730. He's also absent from the 2000 list.

While AIP's revenues slightly exceeded its expenses for 2001, its balance sheet was dragged down by its investment portfolio. Unrealized losses were reported at $4.2 million. Net assets were just over $80 million at year-end.

Job Changes and Appointments

University of California President Richard Atkinson has announced his intention to make permanent the appointment of **George P. 'Pete' Nanos** as director of Los Alamos National Laboratory. Nanos, a PhD physicist, is a retired admiral who once directed the Navy's strategic nuclear weapons program. His appointment would mark the first time that a former high-ranking military officer is put in charge of one of the Department of Energy's nuclear weapons

May or June? 2003

AMERICAN INSTITUTE OF PHYSICS

AIP INTER-OFFICE MEMORANDUM

TO: All Employees of AIP

FROM: Theresa C. Braun TCB **EXTENSION:** 3030/2292

DATE: December 2, 1999

SUBJECT: Salary Increase Guideline Matrix – Year 2000

Attached is a copy of AIP's Year 2000 Salary Increase Guidelines.

In addition, the Management Committee has approved a 3% increase in AIP's salary grade ranges, effective January 1, 2000. For example:

1999

Grade	Range		
	Min	Mid	Max
Exempt 2	$26,575	$34,475	$42,375

Year 2000

Grade	Range		
	Min	Mid	Max
Exempt 2	$27,375	$35,513	$43,650

Your salary will not be affected by this adjustment to the salary structure unless it falls below the Year 2000 minimum of the salary range. If you have any questions, please call Jonathan Goodwin at Extension 3044.

Thank you.

S 000909

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YEAR 2000 SALARY INCREASE GUIDELINE

Performance Rating	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile
Consistently Exceeds Job Requirements *4.75 - 5.0* 5	7% - 9%	6% - 8%	5% - 7%	5% - 6%
Exceeds Job Requirements *3.75 - 4.74* 4	4.5% - 5.5%	4% - 5%	3.5% - 4.5%	3% - 4%
Meets Job Requirements *2.75 - 3.74* 3	3.5% - 4.5%	2.5% - 3.5%	2% - 3%	2%
Partially Meets Job Requirements *1.75 - 2.74* 2	0% Defer for 3 - 6 months (not retro)	0% Defer for 3 - 6 months (not retro)	0% Defer for 3 - 6 months (not retro)	0% Defer for 3 - 6 months (not retro)
Does Not Meet Job Requirements *1.0 - 1.74* 1	0% Defer for 3 months (not retro) or Termination	0% Defer for 3 months (not retro) or Termination	0% Defer for 3 months (not retro) or Termination	0% Defer for 3 months (not retro) or Termination

ALL PROMOTIONS MUST BE REVIEWED BY THE DIRECTOR, HUMAN RESOURCES

Promotional Increase Guidelines:

Promotion to new position with increased responsibility - 3% to 5%

Promotions that involve major changes in responsibility will be dealt with on an individual basis

U.S. DOL

Employment Standards Administration
Office of Federal Contract Compliance Programs
Affirmative Action Fact Sheet

FACTS ON EXECUTIVE ORDER 11246
AFFIRMATIVE ACTION

Revised December 13, 1999

Affirmative Action:  **Creating Economic Opportunity and Security For All Americans**

Facts About the OFCCP Programs

A. OFCCP Mission Description

The Department of Labor's Employment Standards Administration's Office of Federal Contract Compliance Programs (OFCCP) enforces the Executive Order 11246, as amended; Section 503 of the Rehabilitation Act of 1973, as amended and the affirmative action provisions (Section 4212) of the Vietnam Era Veterans' Readjustment Assistance Act, as amended. Taken together, these laws ban discrimination and require Federal contractors and subcontractors to take affirmative action to ensure that all individuals have an equal opportunity for employment, without regard to race, color, religion, sex, national origin, disability or status as a Vietnam era or special disabled veteran.

- OFCCP's jurisdiction covers approximately 26 million or nearly 22% of the total civilian workforce (92,500 non-construction establishments and 100,000 construction establishments). The Federal Government awarded more than $179 billion tax-payer dollars in prime contracts in Fiscal Year 1995.

- OFCCP requires a contractor, as a condition of having a federal contract, to engage in a self-analysis for the purpose of discovering any barriers to equal employment opportunity. No other Government agency conducts comparable systemic reviews of employers' employment practices to ferret out discrimination. OFCCP also investigates complaints of discrimination. In Fiscal Year 1999, OFCCP conducted 3,833 compliance reviews. **Since 1994, OFCCP has recovered more than $217 million dollars in total financial settlements for victims of discrimination.** Moreover, OFCCP programs prevent discrimination. Further information about the OFCCP programs may be obtained from the Internet.

B. Operation of the Executive Order Program. The EEO clause

Each contracting agency in the Executive Branch of government must include the equal opportunity clause in each of its nonexempt government contracts. The equal opportunity clause requires that the contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. American

UNIVERSITY OF
MARYLAND
OFFICE OF THE PRESIDENT

2101 Main Administration Building
College Park, Maryland 20742
301.405.4945 TEL 301.314.9395 FAX

July 17, 2001

Jeff Smith
3003 Van Ness Street, N.W.
Apartment 406
Washington, D.C. 20008

Dear Mr. Smith:

We are in receipt of your letter of July 1, 2001, to Dr. Ann G. Wylie, Assistant President. Because you invoke the Maryland Public Information Act (the "MPIA"), it has been forwarded to this Office for consideration and reply.

You have asked for "the agreement that the university negotiated with the American Center for Physics." We are unable to locate a fully executed copy of the *Relationship and Cooperation between American Center for Physics and University of Maryland, College Park* as the document is known. However, we have been able to retrieve a final draft dated November 17, 1993. It is my understanding that there were no substantive changes made to it. A copy is enclosed.

You have also requested a "complete list of university affiliates." As you may appreciate, the MPIA does not require the University to generate new material. And to the best of our knowledge, a list of "affiliates" has never been attempted. In large measure this reflects the imprecise and varied way the word "Affiliate" or "affiliated" has come to be used in faculty parlance. We remain prepared, however, to offer you copies of other agreements if you might describe them with sufficient particularity to enable us to more readily identify them.

We trust this responds fairly to your inquiry.

Sincerely,

Jack T. Roach
Executive Assistant to the
President & Chief Counsel

cc: Dr. Ann G. Wylie

S 000912

file

Draft proposal, ver 0.4
AH, Nov. 17, 1993

RELATIONSHIP AND COOPERATION
between
AMERICAN CENTER FOR PHYSICS and UNIVERSITY OF MARYLAND, COLLEGE PARK

0. Premise

The proximity of the newly opened American Center for Physics and the University of Maryland at College Park offers an opportunity for sharing resources and expertise in a way that benefits both institutions and the science community. The prospect of synergy between the Physics Department and individual physics organizations that comprise ACP was, after all, an important factor in the decision to locate ACP in Maryland.

This document attempts to define a framework for collaboration between ACP and UMCP. It is based on prior discussion between the two groups and the agreements reached verbally to date.

1. Representation of ACP and UMCP

The ACP Board is comprised of two representatives of each of the Member Organizations: Marc Brodsky and Arthur Bent for AIP, Harry Lustig and Irving Lerch for APS, and Bernard Khoury and Robert Sears for AAPT. Sal Trofi (previously also Christopher Marshall) from AAPM, an Affiliate Member of ACP, attends the Board meetings as a non-voting participant. A subgroup of the ACP Board, composed of one person from each member organization, will continue to represent ACP in contacts with UMCP.

In recent formal and informal discussions, ACP was represented by Kenneth Ford, former Executive Director of AIP, Harry Lustig, and Bernard Khoury. The following people from the University of Maryland have participated at various times: Richard Herman, Dean of the College of Computer, Mathematical, and Physical Sciences; Bruce Fretz, Associate Vice President of Academic Affairs; Brian Darmody, Assistant to the President at UMCP. The Physics Department has been represented in these talks by: Chuan Liu, acting Chair, Angelo Bardasis, Associate Chair, John Layman, and Pam Harris of educational/outreach programs.

2. Summary of early discussions

The ACP Board and its individual members have met on a number of occasions with the UM administration officials and representatives of the physics department. It was agreed in principle that:

(a) Staff of ACP will receive identification cards, allowing access to College Park campus facilities such as are used by the full time staff at UMCP, including access to libraries (with some restrictions on borrowing books) and the campus shuttle system.

(b) Some physicists on the staff at AIP, APS, AAPT, and AAPM may be offered adjunct or visiting faculty status at the Physics Department. The number of these appointments will be limited and they will be handled on a case by case basis. ACP suggested for consideration thus far the following people: Marc Brodsky, Jack Hehn, Bernard Khoury, Irving Lerch, Harry Lustig, John Rigden, and Spencer Weart.

A more detailed summary of prior discussions is given in the June 29 draft prepared by Bernard Khoury.

3. ACP services to UMCP

The following are preliminary suggestions of the services that ACP may offer to the UMCP faculty.

(a) Niels Bohr Library. Access to the stacks and access to the archives for scholarly purposes. Copying services, free loan of copies of interviews on tapes and microfilms. Employment opportunities for students and graduate students.

(b) Student Internships and faculty fellowships. Possibility of internship in archival and library science, in history of science, in science writing and editing, in science policy and management (including Physics Management Fellow position at AIP). Also fellowships for faculty in these areas. ACP may also be able to offer postdoctoral positions.

(c) ACP publications and information. Distribution to interested faculty members of any of the following: FYI (e-mail), Physics News Update (e-mail), History of Physics Newsletter, brochures from the Education and Employment Statistics. Also access to information and advice on employment opportunities for physicists.

(d) PINET. Limited number of free access accounts to the PINET database and services. Unlimited paid access.

(e) Conference facility. Limited use of ACP conference rooms and facilities.

4. UMCP services to ACP

The following are preliminary suggestions of the services that the University and the Physics Department may offer to ACP staff.

(a) Temporary staff id cards. For interested professional full-time staff at ACP. The id cards will allow access to university and departmental libraries (limited borrowing privileges and access to stacks, at least for some ACP staff), shuttle system, and other services available to UMCP staff.

(b) Adjunct/visiting faculty positions. The Physics Department may offer a limited number of appointments to physicists in ACP, some of them on a rotating basis in connection with teaching assignments. ACP will forward a list of people interested in these positions.

(c) University publications. University newspaper(s) and departmental newsletters, announcements of colloquia talks, etc., distributed in hard copy and/or via e-mail in limited number to ACP. Several copies of the university catalogue and listings of courses offered sent to Niels Bohr Library each semester.

Send catalog

(d) UMCP computing facilities. Access to computing services and on-line data-base to selected ACP scientists for research.

(e) University and departmental lectures and colloquia. Open to all interested staff members at ACP.

(f) ACP bus stop. Extension of the university shuttle system so that there is a regular ACP bus stop. This will facilitate contacts between the two communities.

5. Future

The details of the proposed procedures will be worked out and modified as needed. ACP and UMCP will seek to maximize the benefits to both sides through collaboration, joint projects, and good neighborly interaction.

AMERICAN INSTITUTE OF PHYSICS

AIP INTER-OFFICE MEMORANDUM

TO: All Employees of AIP

FROM: Theresa C. Braun TCB **EXTENSION:** 3030/2292

DATE: December 2, 1999

SUBJECT: Salary Increase Guideline Matrix – Year 2000

Attached is a copy of AIP's Year 2000 Salary Increase Guidelines.

In addition, the Management Committee has approved a 3% increase in AIP's salary grade ranges, effective January 1, 2000. For example:

1999

Grade	Range		
	Min	Mid	Max
Exempt 2	$26,575	$34,475	$42,375

Year 2000

Grade	Range		
	Min	Mid	Max
Exempt 2	$27,375	$35,513	$43,650

S 000916

Your salary will not be affected by this adjustment to the salary structure unless it falls below the Year 2000 minimum of the salary range. If you have any questions, please call Jonathan Goodwin at Extension 3044.

Thank you.

\\AIPCP1\DATA\JGOODWIN\Matrix 2000 MEMO.doc

YEAR 2000 SALARY INCREASE GUIDELINE

Performance Rating	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile
Consistently Exceeds Job Requirements *4.75 - 5.0* **5**	7% - 9%	6% - 8%	5% - 7%	5% - 6%
Exceeds Job Requirements *3.75 - 4.74* **4**	4.5% - 5.5%	4% - 5%	3.5% - 4.5%	3% - 4%
Meets Job Requirements *2.75 - 3.74* **3**	3.5% - 4.5%	2.5% - 3.5%	2% - 3%	2%
Partially Meets Job Requirements *1.75 - 2.74* **2**	0% Defer for 3 - 6 months (not retro)	0% Defer for 3 - 6 months (not retro)	0% Defer for 3 - 6 months (not retro)	0% Defer for 3 - 6 months (not retro)
Does Not Meet Job Requirements *1.0 - 1.74* **1**	0% Defer for 3 months (not retro) or Termination	0% Defer for 3 months (not retro) or Termination	0% Defer for 3 months (not retro) or Termination	0% Defer for 3 months (not retro) or Termination

ALL PROMOTIONS MUST BE REVIEWED BY THE DIRECTOR, HUMAN RESOURCES

Promotional Increase Guidelines:

Promotion to new position with increased responsibility - 3% to 5%

Promotions that involve major changes in responsibility will be dealt with on an individual basis

S 000917

AMERICAN INSTITUTE OF PHYSICS

One Physics Ellipse
College Park, MD 20740-3843

Tel. 301-209-3131
Fax 301-209-3133

E-mail: brodsky@aip.org

Marc H. Brodsky, Executive Director and CEO

December 3, 1999

To: All AIP staff

From: Marc H. Brodsky

Subject: E-commerce initiatives at AIP

To increase AIP's revenue, and develop new sources of income, we will expand our e-commerce activities in 2000. Part of these plans include the creation of a new online e-commerce system that will allow you to conduct more of your business over the Internet. If your division sells a product or service, I'd like you to think about how you might use the web to serve your customers more effectively. Are you currently selling all your products online? Are there new items or services you can offer? New customers you might approach? The web offers us many exciting possibilities, and this is your chance to participate directly.

To help us design and fulfill these plans, we have created several new e-commerce positions within AIP:

Our E-Commerce Program Director will be Wayne Manos. He will assist all appropriate units at AIP in developing and carrying out their own e-commerce projects.

Scott Johnson, E-Commerce Systems Technical Specialist, will be responsible for planning and designing computer systems and software applications for e-commerce.

Jennifer Drucker, Supervisor of E-Commerce and Web Services, will oversee the technical development and design of e-commerce initiatives, and ensure the presentation of a single, unified site for AIP.

Carmina Pasion, E-Commerce Systems Analyst, will help create and maintain the "back office" and accounting functions of our e-commerce system.

We will soon hire an Advertising Sales Representative dedicated solely to selling online ads.

In addition, *Physics Today* will be hiring two new editors devoted to creating content for the magazine's online edition. The expanded *Physics Today Online* will launch early next year.

As you can see, this is a major undertaking that will affect many areas of our organization. I'll ask that you please help our e-commerce team as it works with you to increase revenue and improve services at AIP. I would like to ask for your creative help, too. If you have an e-commerce idea that might benefit AIP, even if it doesn't directly relate to your current activities, please drop a line to Wayne in Melville. If you have e-mail access, you can use our virtual suggestion box: eideas@aip.org

As we begin this exciting initiative, please join me in welcoming our e-commerce team to their new positions.

AMERICAN INSTITUTE OF PHYSICS

INTEROFFICE MEMORANDUM

TO: All Employees of AIP

June 17, 1997

FROM: Theresa C. Braun TCB

SUBJECT: Revised pages for the Employee Handbook

Attached are revised pages for the Employee Handbook. Please insert each page into your Employee Handbook, discard the old page and take time to familiarize yourself with AIP's overall policies an practices.

Please review page 39 of your Employee Handbook. If you have not returned your Receipt of Employee Handbook, please do so at this time.

Please feel free to call the Personnel Division if you have any questions.

June 1997

Full-Time and Part-Time Employees

Currently regular full-time employees work at least 35 hours per week in New York, and 37.5 hours per week in Maryland, and receive full benefits. These hours are subject to change according to business needs.

Regular part-time employees work at least 25 hours per week and receive full benefits.

Hourly employees will usually work less than 25 hours per week at an AIP location.

Temporary employees are hired as needed on an irregular basis.

Cottage employees will usually work less than 25 hours per week, at home.

Throughout the *Employee Handbook* the term "regular employee" will be used to denote only regular full-time and part-time employees.

Your Normal Work Week

The normal work week for (full-time) employees is 35 hours (in New York) and 37.5 hours (in Maryland), Monday through Friday.

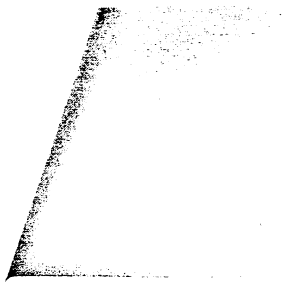
New York

There are two shifts: a day shift from 8:45 a.m. to 4:15 p.m., with ½ hour for lunch and two 15-minute breaks; and an evening shift from 5:00 p.m. to 11:00 p.m., with two 15-minute breaks.

Maryland

The normal work day is from 8:30 a.m. to 5:00 p.m., with one hour for lunch and two 15-minute breaks.

Maryland employees may work flexible hours, within the following guidelines. All regular, full-time employees must work during the core hours of 9:00 a.m. - 4:00 p.m., taking either a half-hour or an hour for lunch. In addition, at least one senior staff member must be present in each department during regular business hours (8:30 a.m. - 5:00 p.m.), and telephones must be continuously covered. All flex time must be approved by the division manager.



Liberal Leave Policy

An employee who feels unable to travel to work because of severe weather conditions on a day when the Institute is open for business, may use a day of vacation or personal leave. If you have no personal or vacation time available, you may take a day of unpaid leave. Advise your supervisor at the start of your shift if you will not be able to work.

Lunchrooms

The Institute maintains lunchrooms at its New York and Maryland locations. Free coffee and tea are provided in the morning before 8:45 a.m. (NY) and 8:30 a.m. (MD), during lunch time and during morning and afternoon breaks at all locations. Employees must arrange their lunch time, at the discretion of their supervisors, between the hours of 12:00 noon and 2 p.m.

Personal Visits and Telephone Calls

Any necessary personal telephone calls should be made during break or lunch periods. Should an emergency arise, your family or friends should be directed to contact the Personnel Division and someone there will arrange that you be notified.

Weather-Related Closings of AIP Offices

The Institute monitors hazardous weather conditions. When a decision for a closing or late arrival is made, the snow line or telephone relay list for each division is activated. All employees will be notified as early as possible. If an early closing time is announced, all employees are expected to observe the revised hours of work.

AMERICAN INSTITUTE OF PHYSICS

COBRA Invoice

Jeff Schmidt
3003 Van Ness St., NW
Washington, DC 20008

Individual

United HealthCare	$326.57
MetLife Dental	29.59
VSP	5.26

Subtotal
$361.42

Total Due: $361.42

DUE DATE: July **10, 2000**

PLEASE SEND CHECK TO: **American Institute of Physics**
One Physics Ellipse
College Park, MD 20740
Attn: Human Resources

(Rates subject to change each calendar year)

S 000928

AMERICAN INSTITUTE OF PHYSICS

COBRA Invoice

Jeff Schmidt
3003 Van Ness St., NW
Washington, DC 20008

Individual

United HealthCare	$326.57
MetLife Dental	29.59
VSP	5.26

Subtotal
$361.42

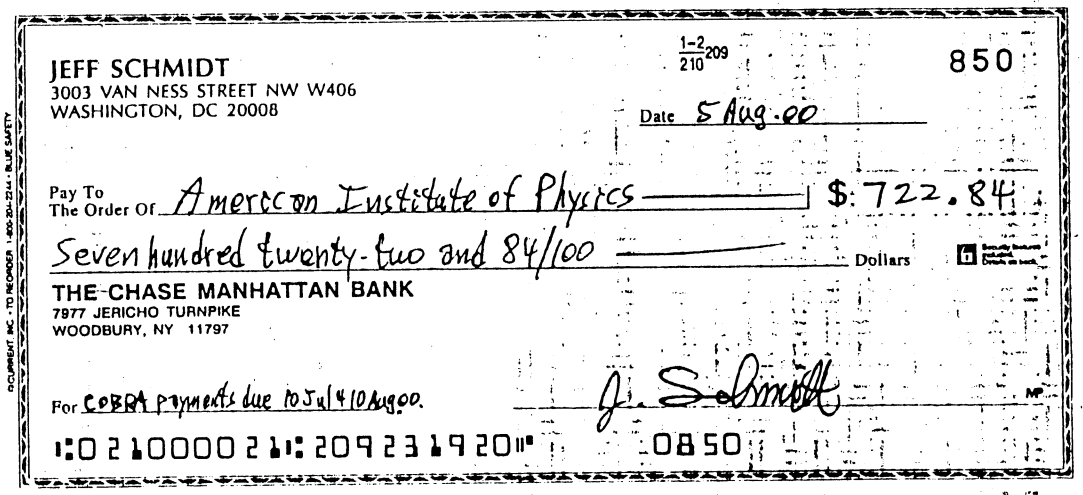
Total Due: $361.42

DUE DATE: AUGUST **10, 2000**

PLEASE SEND CHECK TO: **American Institute of Physics**
One Physics Ellipse
College Park, MD 20740
Attn: Human Resources

(Rates subject to change each calendar year)

S 000929



JEFF SCHMIDT
3003 VAN NESS STREET NW W406
WASHINGTON, DC 20008

1-2
210 209

850

Date 5 Aug. 00

Pay To
The Order Of American Institute of Physics $ 722.84

Seven hundred twenty-two and 84/100 Dollars

THE CHASE MANHATTAN BANK
7977 JERICHO TURNPIKE
WOODBURY, NY 11797

For COBRA payments due 10 Jul & 10 Aug 00.

J. Schmidt

⑈021000021⑈ 209231920⑈ 0850

AMERICAN INSTITUTE OF PHYSICS

COBRA Invo

Jeff Schmidt
3003 Van Ness St., NW
Washington, DC 20008

Individual

United HealthCare	$326.57
MetLife Dental	29.59
VSP	5.26

Subtotal
$361.42

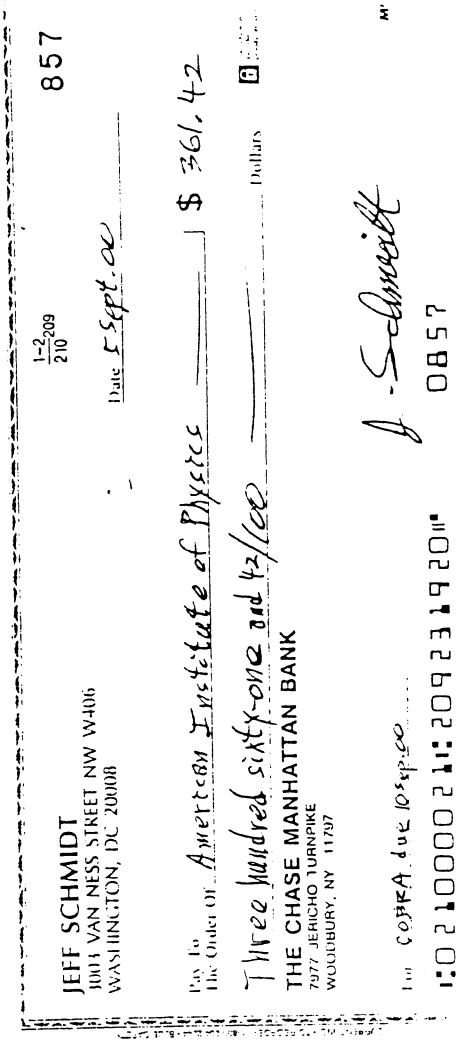
Total Due: $361.42

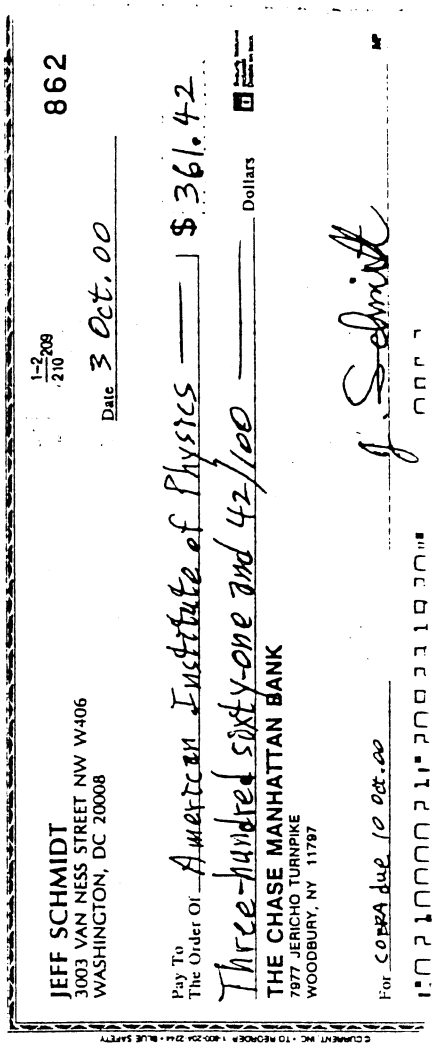
DUE DATE: SEPTEMBER 10, 2000

PLEASE SEND CHECK TO: American Institute of Physics
One Physics Ellipse
College Park, MD 20740
Attn: Human Resources

(Rates subject to change each calendar year)

S 000931





Individual

United HealthCare	$326.57
MetLife Dental	29.59
VSP	5.26

Subtotal
$361.42

Total Due: $361.42

DUE DATE: OCTOBER **10, 2000**

PLEASE SEND CHECK TO: **American Institute of Physics**
One Physics Ellipse
College Park, MD 20740
Attn: Human Resources

(Rates subject to change each calendar year)

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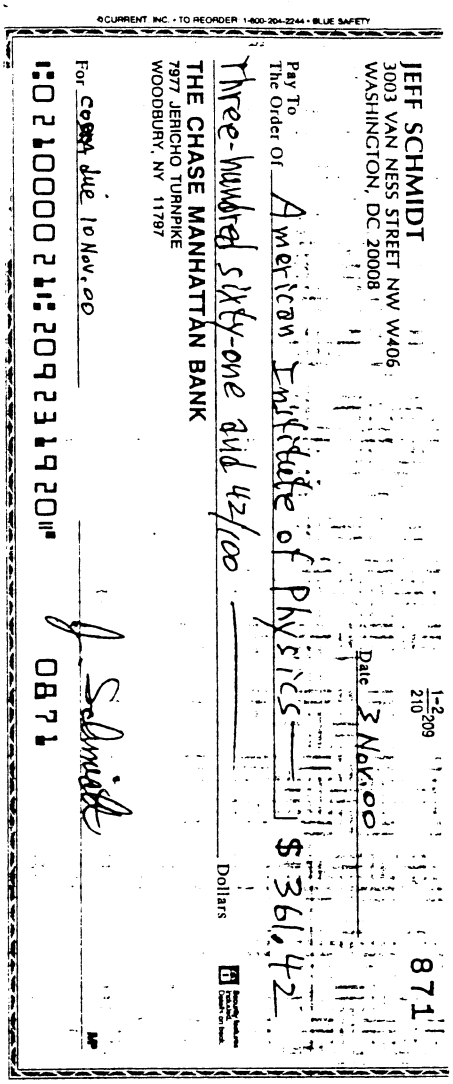


Individual

United HealthCare	$326.57
MetLife Dental	29.59
VSP	5.26

Subtotal
$361.42

Total Due: $361.42

DUE DATE: NOVEMBER **10, 2000**

PLEASE SEND CHECK TO: **American Institute of Physics**
One Physics Ellipse
College Park, MD 20740
Attn: Human Resources

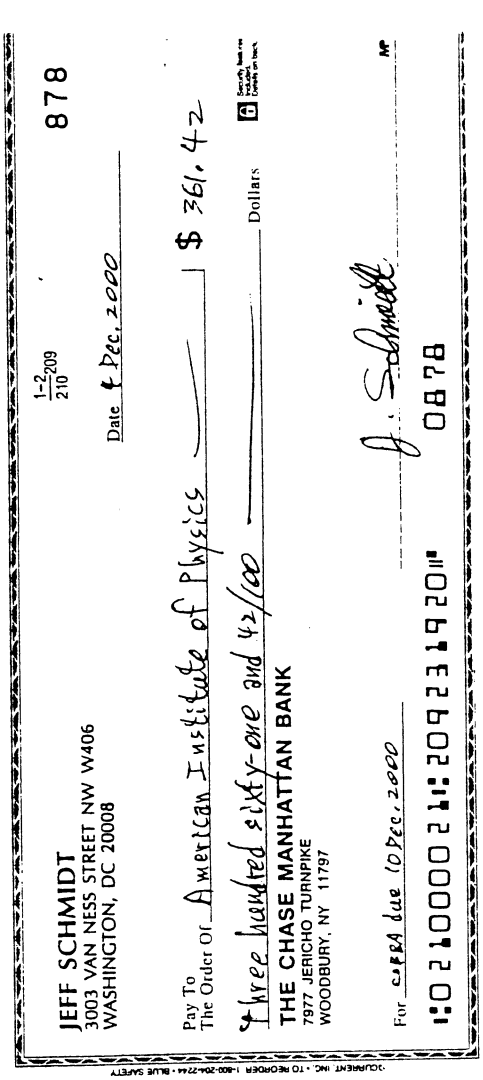
(Rates subject to change each calendar year)

S 000933

AMERICAN INSTITUTE OF PHYSICS

COBRA Invo

Jeff Schmidt
3003 Van Ness St., NW
Washington, DC 20008


878
1-2/210
Date 4 Dec, 2000
$ 361.42
Pay To The Order Of American Institute of Physics
three hundred sixty-one and 42/100 Dollars
JEFF SCHMIDT
3003 VAN NESS STREET NW W406
WASHINGTON, DC 20008
THE CHASE MANHATTAN BANK
7977 JERICHO TURNPIKE
WOODBURY, NY 11797
For COBRA due 10 Dec. 2000
J. Schmidt
⑆021000021⑆ 209231920⑈ 0878

Individual

United HealthCare	$326.57
MetLife Dental	29.59
VSP	5.26

Subtotal
$361.42

Total Due: $361.42

DUE DATE: DECEMBER **10, 2000**

PLEASE SEND CHECK TO: **American Institute of Physics**
One Physics Ellipse
College Park, MD 20740
Attn: Human Resources

(Rates subject to change each calendar year)

S 000934

AMERICAN INSTITUTE OF PHYSICS
Human Resources Department
One Physics Ellipse, College Park, MD 20740
(301) 209-3025

COBRA INVOICE
2001

Jeff Schmidt
3003 Van Ness Street, NW
Washington,DC 20008

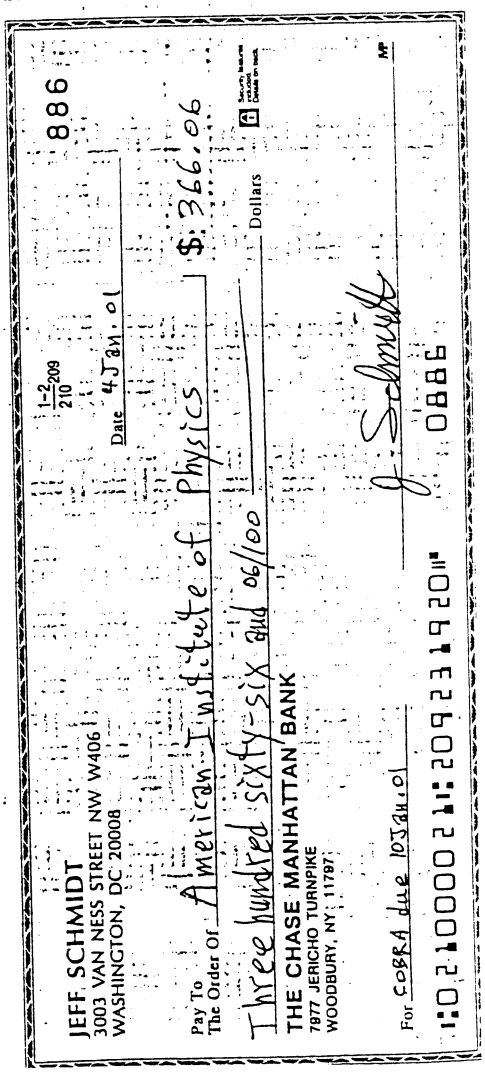
Payment as shown below is due by the 10th day of the month. Check should be made payable to "AIP" and mailed to the Human Resources Department at the address above.

MONTH OF Jan. 2001

Individual United Healthcare	$326.57
Individual MetLife Dental	$ 33.44
Individual VSP	$ 6.05
TOTAL DUE	**$366.06**

(2% Administration Charge included)

(Rates are subject to change each calendar year; you will for next year's payments).



S 000935

AMERICAN INSTITUTE OF PHYSICS
Human Resources Department
One Physics Ellipse, College Park, MD 20740
(301) 209-3025

COBRA INVOICE
2001

Jeff Schmidt
3003 Van Ness Street, NW
Washington,DC 20008

Payment as shown below is due by the 10th day of the month. Check should be made payable to "AIP" and mailed to the Human Resources Department at the address above.

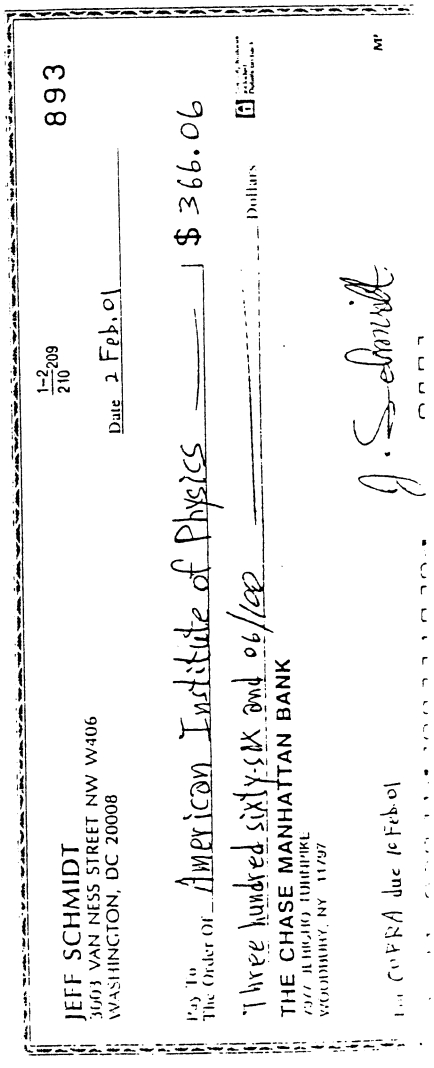
MONTH OF Feb. 2001

Individual United Healthcare	$326.57
Individual MetLife Dental	$ 33.44
Individual VSP	$ 6.05
TOTAL DUE	**$366.06**

(2% Administration Charge included)

(Rates are subject to change each calendar year; you will for next year's payments).

S 000936


JEFF SCHMIDT
3003 VAN NESS STREET NW W406
WASHINGTON, DC 20008

893

1-2/210

Date 2 Feb, 01

Pay To The Order Of American Institute of Physics $ 366.06

Three hundred sixty six and 06/100 Dollars

THE CHASE MANHATTAN BANK

J. Schmidt

For COBRA due 1 Feb 01

AMERICAN INSTITUTE OF PHYSICS
Human Resources Department
One Physics Ellipse, College Park, MD 20740
(301) 209-3025

COBRA INVOICE
2001

Jeff Schmidt
3003 Van Ness Street, NW
Washington,DC 20008

Payment as shown below is due by the 10th day of the month. Check should be made payable to "AIP" and mailed to the Human Resources Department at the address above.

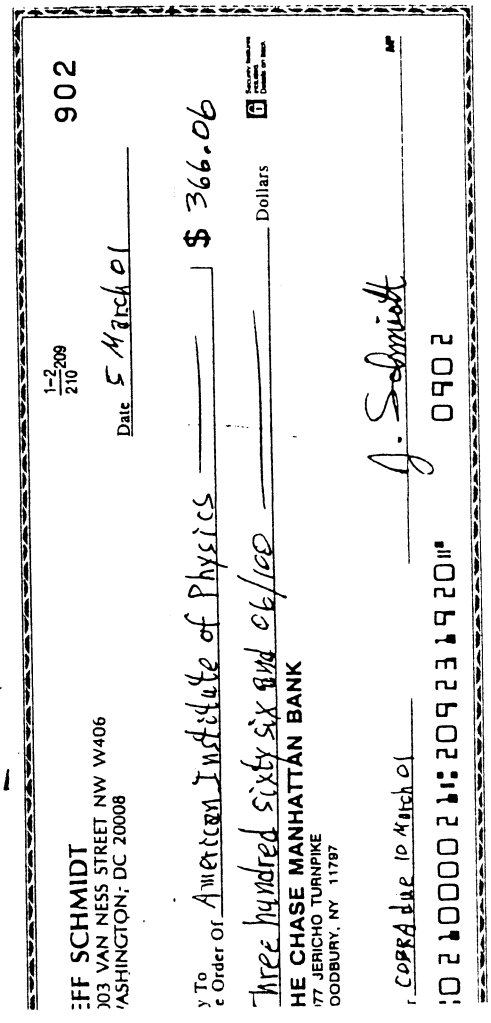
MONTH OF March 2001

Individual United Healthcare	$326.57
Individual MetLife Dental	$ 33.44
Individual VSP	$ 6.05
TOTAL DUE	**$366.06**

(2% Administration Charge included)

(Rates are subject to change each calendar year; you will l for next year's payments).

S 000937



AMERICAN INSTITUTE OF PHYSICS
Human Resources Department
One Physics Ellipse, College Park, MD 20740
(301) 209-3025

COBRA INVOICE
2001

Jeff Schmidt
3003 Van Ness Street, NW
Washington,DC 20008

Payment as shown below is due by the 10th day of the month. Check should be made payable to "AIP" and mailed to the Human Resources Department at the address above.

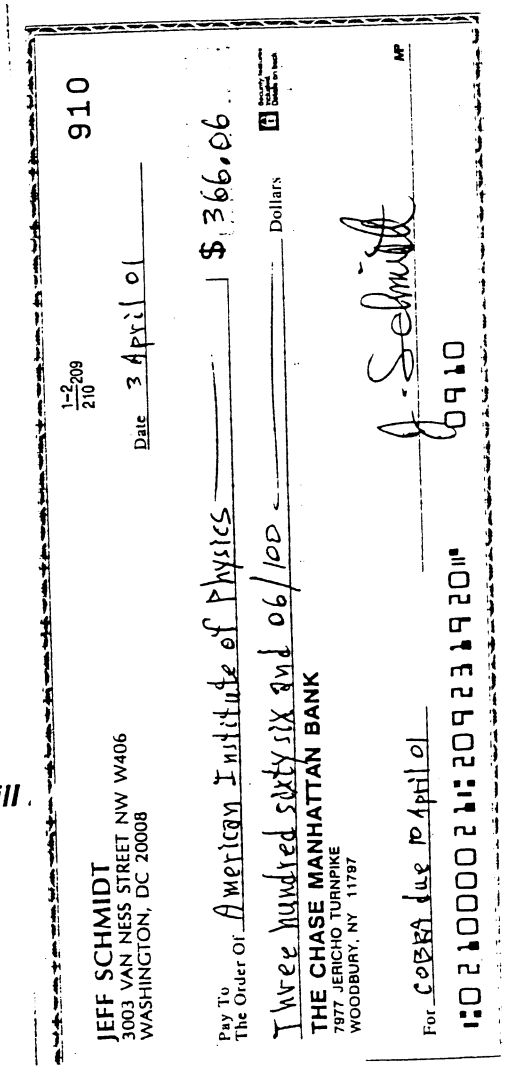
MONTH OF April 2001

Individual United Healthcare	$326.57
Individual MetLife Dental	$ 33.44
Individual VSP	$ 6.05
TOTAL DUE	**$366.06**

(2% Administration Charge included)

(Rates are subject to change each calendar year; you will . for next year's payments).

S 000938



AMERICAN INSTITUTE OF PHYSICS
Human Resources Department
One Physics Ellipse, College Park, MD 20740
(301) 209-3025

COBRA INVOICE
2001

Jeff Schmidt
3003 Van Ness Street, NW
Washington,DC 20008

Payment as shown below is due by the 10th day of the month. Check should be made payable to "AIP" and mailed to the Human Resources Department at the address above.

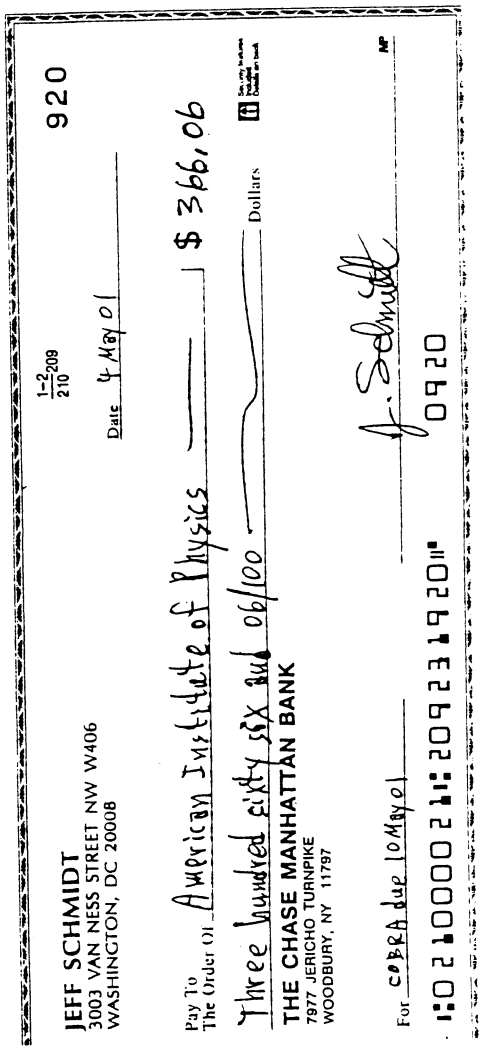
MONTH OF May 2001

Individual United Healthcare	$326.57
Individual MetLife Dental	$ 33.44
Individual VSP	$ 6.05
TOTAL DUE	**$366.06**

(2% Administration Charge included)

(Rates are subject to change each calendar year; you will for next year's payments).

S 000939



AMERICAN INSTITUTE OF PHYSICS
Human Resources Department
One Physics Ellipse, College Park, MD 20740
(301) 209-3025

COBRA INVOICE
2001

Jeff Schmidt
3003 Van Ness Street, NW
Washington,DC 20008

Payment as shown below is due by the 10th day of the month. Check should be made payable to "AIP" and mailed to the Human Resourc address above.

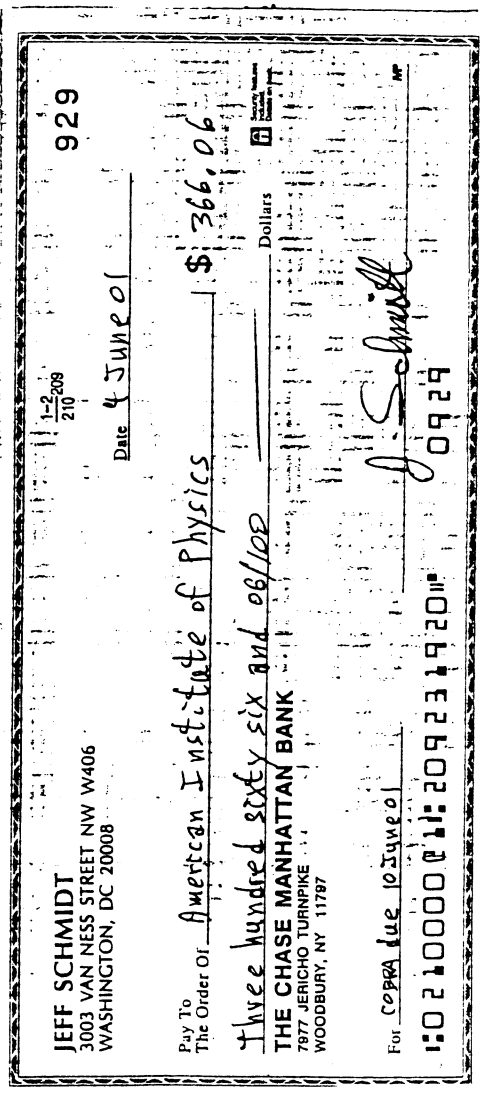
MONTH OF June 2001

Individual United Healthcare	$326.57
Individual MetLife Dental	$ 33.44
Individual VSP	$ 6.05
TOTAL DUE	**$366.06**

(2% Administration Charge included)

(Rates are subject to change each calendar year; you w for next year's payments).

S 000940


JEFF SCHMIDT
3003 VAN NESS STREET NW W406
WASHINGTON, DC 20008

929

Date 4 June 01

Pay To The Order Of American Institute of Physics $ 366.06

three hundred sixty six and 06/100 Dollars

THE CHASE MANHATTAN BANK
7877 JERICHO TURNPIKE
WOODBURY, NY 11797

For COBRA due 10 June 01 J Schmidt

⑆021000021⑆209231920⑈ 0929

AMERICAN INSTITUTE OF PHYSICS
Human Resources Department
One Physics Ellipse, College Park, MD 20740
(301) 209-3025

COBRA INVOICE
2001

Jeff Schmidt
3003 Van Ness Street, NW
Washington,DC 20008

Payment as shown below is due by the 10th day of the month. Check should be made payable to "AIP" and mailed to the Human Resources Department at the address above.

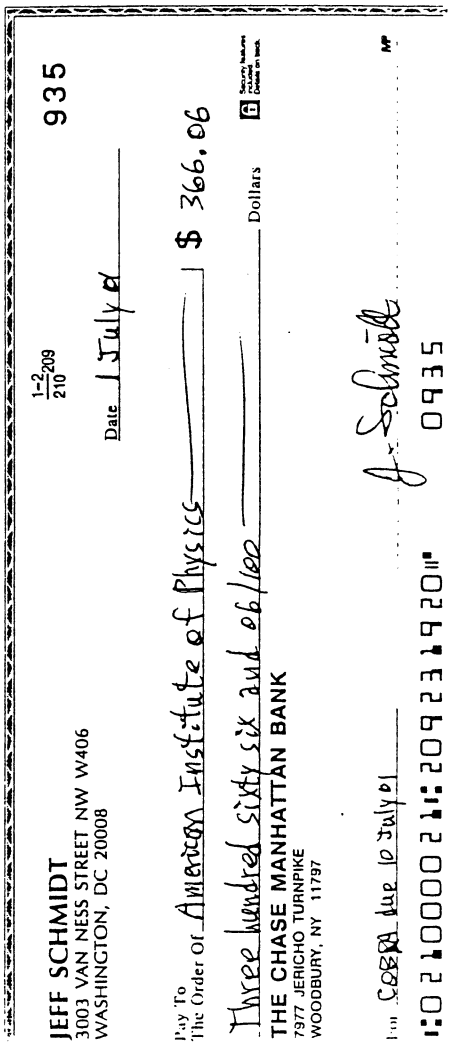
MONTH OF July 2001

Individual United Healthcare	$326.57
Individual MetLife Dental	$ 33.44
Individual VSP	$ 6.05
TOTAL DUE	**$366.06**

(2% Administration Charge included)

(Rates are subject to change each calendar year; you will for next year's payments).

S 000941



AMERICAN INSTITUTE OF PHYSICS
Human Resources Department
One Physics Ellipse, College Park, MD 20740
(301) 209-3025

COBRA INVOICE
2001

Jeff Schmidt
3003 Van Ness Street, NW
Washington,DC 20008

Payment as shown below is due by the 10th day of the month. Check should be made payable to "AIP" and mailed to the Human Resources Department at the address above.

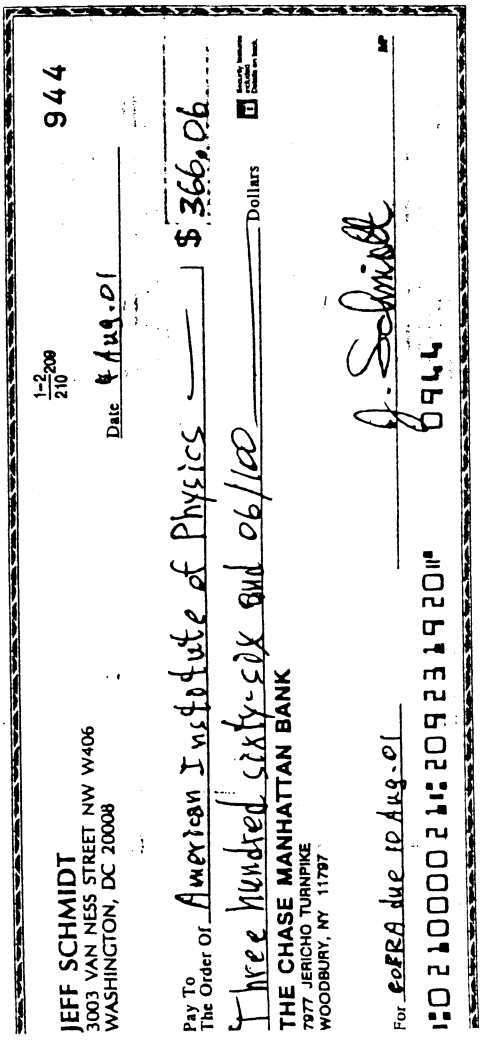
MONTH OF Aug 2001

Individual United Healthcare	$326.57
Individual MetLife Dental	$ 33.44
Individual VSP	$ 6.05
TOTAL DUE	**$366.06**

(2% Administration Charge included)

(Rates are subject to change each calendar year; you will for next year's payments).

S 000942



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2001

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MONTH OF Sept 2001

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TOTAL DUE	**$366.06**

(2% Administration Charge included)

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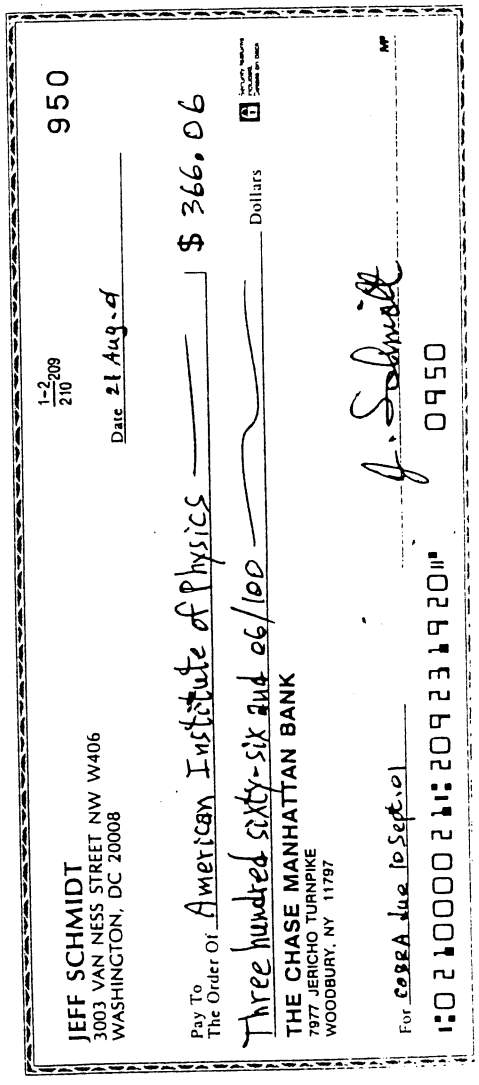
S 000943



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MONTH OF 11 / 2001

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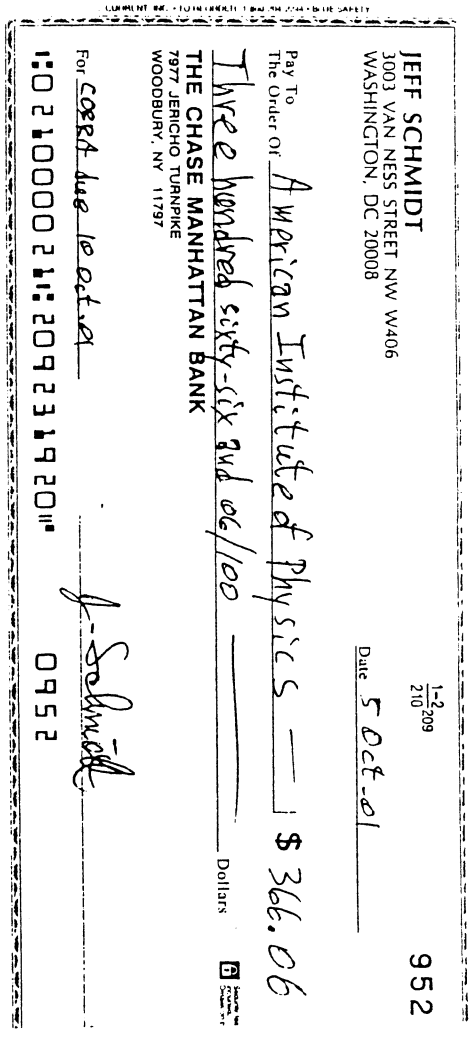
Individual MetLife Dental	$ 33.44
Individual VSP	$ 6.05
TOTAL DUE	**$366.06**

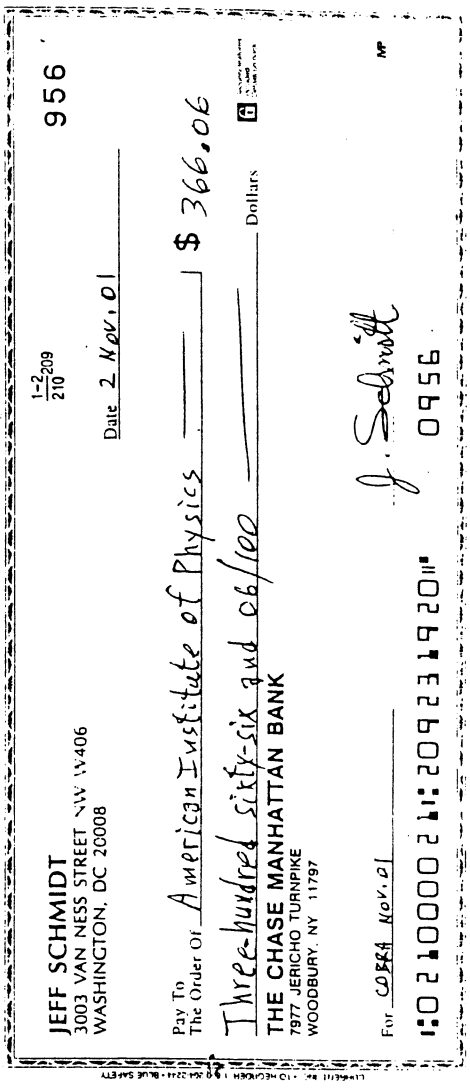
(2% Administration Charge included)

(Rates are subject to change each calendar year; you will ... for next year's payments).

S 000944



AMERICAN INSTITUTE OF PHYSICS
Human Resources Department
One Physics Ellipse, College Park, MD 2(
(301) 209-3025



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S 000945

CATALYSIS AND SURFACE SCIENCE

Modern surface physics is transforming the black art of catalysis, revealing a fascinating choreography followed by reacting atoms and molecules.

Gerhard Ertl and Hans-Joachim Freund

In 1835 the Swedish chemist Jöns Jakob Berzelius coined the term "catalysis" to describe chemical reactions in which progress is affected by a substance that is not consumed in the reaction and hence is apparently not involved in the reaction. Both the term and the phenomenon were heavily debated throughout the rest of the 19th century until the German chemist Wilhelm Ostwald proposed a now generally accepted definition: "A catalyst is a substance that accelerates the rate of a chemical reaction without being part of its final products." The catalyst acts by forming intermediate compounds with the molecules involved in the reaction, offering them an alternate, more rapid path to the final products.

Catalysis is of vital importance. In biological systems, enzymes play a catalytic role. In the chemical and petroleum industries, key processes are based on catalysis. And in environmental chemistry, catalysts are essential to breaking down pollutants such as automobile and industrial exhausts.

If the catalyst and the reacting species are in the same phase (for example, liquid), then the process is known as homogeneous catalysis. More relevant in technical processes is heterogeneous catalysis, where the catalyst is a solid and the reacting molecules interact with its surface from the gaseous or liquid phases.[1] The economic significance of heterogeneous catalysis is reflected in the fact that the worldwide market for solid catalysts in the automotive, petroleum and other industries is on the order of $100 billion per year and growing rapidly.[2]

Typically, the chemical transformation occurs in a flow reactor through which the reacting species pass. Atoms in the surface of the catalyst may form chemical bonds with atoms in impinging molecules, a phenomenon known as chemisorption. If existing bonds in the molecule break, the process is called dissociative chemisorption. The chemisorbed species are mobile on the surface and may bond to other particles, thus leading to new molecules, which eventually leave the surface (desorb) as the desired reaction products.

Detailed identification and characterization of these elementary processes is hampered, however, by fundamental problems. The reacting systems exist merely as two-dimensional phases for which most of the usual methods of investigation are not well suited, and so researchers have had to develop novel surface-sensitive tools. (See the box on page *****.) Furthermore, the surfaces of "real" catalysts are typically rather inhomogeneous. Because their efficiency increases with their total surface area (as long as no diffusion or other limiting transport process is required), finely divided particles are usually applied to a more-or-less inert support material. (See figure 1.) Catalytic activity is often further enhanced by the addition of compounds called promoters.

GERHARD ERTL *is director of the department of physical chemistry, and* HANS-JOACHIM FREUND *is director of the department of chemical physics, at the Fritz Haber Institute of the Max Planck Society in Berlin.*

Making ammonia

The synthesis of ammonia (NH_3) from the elements nitrogen (N_2) and hydrogen (H_2) represents the first—and still one of the most important—large-scale industrial processes based on heterogeneous catalysis.[3] This reaction was first realized in 1909 by Fritz Haber, on a laboratory scale. Only four years later, due mainly to work performed by Carl Bosch and Alwin Mittasch, the first industrial plant of Badische Anilin und Soda-Fabrik, one of today's big chemical companies, started operations. Currently, 150 million tons of ammonia are produced per year worldwide, most of which is converted into fertilizer.

The catalyst developed by Mittasch was essentially iron with small amounts of potassium, aluminum and calcium added as promoters. With only minor modification, it is still in use in most ammonia-producing plants. It is only in recent years that catalysts based on supported ruthenium particles with alkali metal promoters have emerged as possible alternatives; they were first proposed by Japanese researchers.

Despite its great complexity, the mechanism of this important reaction can now be regarded as known. The reaction rate can be successfully modeled on the basis of the kinetics of the elementary steps involved, as figure 2 illustrates.[4]

The necessary information was obtained largely by surface science modeling. An actual catalyst is complex, consisting of small solid particles supported on oxide powders exposing various crystal planes, usually with poorly defined composition and morphology. Consequently, model systems must be developed. By "model," we mean real but simple systems. The simplest model system would be a well-defined single crystal surface whose structure may be varied by choosing different surface orientations. Furthermore, by introducing defects and by modifying the crystal's chemical composition, the morphology of the surface may be changed to bridge the material gap between the models and the actual catalyst.

From: Marc Brodsky
To: Schmidt, Jeff
Date: Wed, Feb 23, 2000 8:40 PM
Subject: Re: E-commerce idea

Jeff,
It's a good idea and I have been trying to get us organized to do this for over a year now. APS already does (or did) something like this with amazon.com,
I am not sure what the commission is but I think 5% is closer than 15%.
Keep suggesting, even if not new it will help us move forward more quickly,
Marc

>>> Jeff Schmidt 02/23/00 11:33AM >>>
Marc --

I recall that a couple of months ago you issued a memo asking for e-commerce ideas. How about putting Physics Today's booklist and book reviews on-line with links to booksellers? That would be a convenience for those who wish to purchase books, and AIP would get a referral commission of 5 percent to 15 percent of purchases.

-- Jeff Schmidt

CC: Benka, Stephen; Manos, Wayne; Nanna, Randy; Per...

From: Jeff Schmidt
To: Marc Brodsky
Date: Wed, Feb 23, 2000 11:33 AM
Subject: E-commerce idea

Marc --

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-- Jeff Schmidt

CC: Jeff Schmidt

From: Toni Feder <tfeder@wam.umd.edu>
To: ACP.AIP(JSCHMIDT)
Date: 12 Oct 1998 (Mon) 15:05
Subject: filling in

Hi Jeff,

Thanks for filling me in. On my drive back to Durham, I thought of someone who might make a very good fill in for you. Her name is Tara O'Brien Pride. She did her PhD with Lillian McDermott at UW, and at the moment is home with her small child. She is a good thinker and writer, and I know she is interested in editing, so this could be a nice opportunity for her, as well as good for PT. If you want her number, I'll find it-- I didn't find it at first search, but do have it. Thanks again for your help on my proprietary data rights story. Your suggestions were good.

--Toni

Received: from wilson.acpub.duke.edu
([152.3.233.69])
by acpgate.acp.org; Mon, 12 Oct 1998 15:03:53 -0400
Received: from wam.umd.edu (async249-6.async.duke.edu [152.3.249.6])
by wilson.acpub.duke.edu (8.8.5/Duke-4.6.0) with ESMTP id PAA09155;
Mon, 12 Oct 1998 15:03:50 -0400 (EDT)
Message-ID: <362252F0.1FBE703D@wam.umd.edu>
Date: Mon, 12 Oct 1998 15:05:35 -0400
From: Toni Feder <tfeder@wam.umd.edu>
Reply-To: tfeder@wam.umd.edu
Organization: Physics Today
X-Mailer: Mozilla 4.04 (Macintosh; I; PPC)
MIME-Version: 1.0
To: jschmidt@aip.acp.org
Subject: filling in
Content-Type: text/plain; charset=us-ascii; x-mac-type="54455854";
x-mac-creator="4D4F5353"
Content-Transfer-Encoding: 7bit

From: "Jean A. Kumagai" <jak@interport.net>
To: toni feder <tfeder@wam.umd.edu>, stephen benka <sb...
Date: 28 Apr 1998 (Tue) 12:48
Subject: Re: applicants

I too would like to see the resumes. I suggest that they be photocopied and fedexed to those of us working off site. I also suggest that we take affirmative action on this hire -- at the very least, sending the job ad to women and minority physicist groups and identifying women and minorities for the editing test and for interviewing.

Jean

At 4:32 PM -0400 4/27/98, toni feder wrote:
>HI Steve,
>
>I'd like to see the applications, but obviously won't have a chance to
>look and comment this week. If anyone at the office has time, perhaps
>he/she could make copies to fax or fedex me (and other telecommuters).
>
>Thanks,
>Toni

CC: Jean Kumagai <jak@interport.net>, rita wehrenberg ...

Received: from amsterdam.interport.net
([199.184.165.9])
by acpgate.acp.org; Tue, 28 Apr 1998 12:49:07 -0400
Received: from [207.237.104.214] (usrts5p45.port.net [207.237.108.45])
by amsterdam.interport.net (8.8.5/8.8.5) with ESMTP id MAA10312;
Tue, 28 Apr 1998 12:48:52 -0400 (EDT)
Date: Tue, 28 Apr 1998 12:48:52 -0400 (EDT)
X-Sender: jak@pop.interport.net
Message-Id: <v03110702b16b7f82f524@[207.237.104.214]>
In-Reply-To: <Pine.SOL.3.95q.980427162821.25126A-100000@rac4.wam.umd.edu>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: toni feder <tfeder@wam.umd.edu>, stephen benka <sbenka@aip.acp.org>
From: "Jean A. Kumagai" <jak@interport.net>
Subject: Re: applicants
Cc: bschwarz@aip.acp.org, goodwin@aip.acp.org, jschmidt@aip.acp.org,
wkornber@aip.acp.org, cday@aip.org, Jean Kumagai <jak@interport.net>,
bgl@worldnet.att.net, charris@aip.acp.org, glubkin@aip.acp.org,
jbarker@aip.acp.org, rita wehrenberg <rwehrenb@aip.acp.org>,
eplotkin@aip.acp.org, paul elliott <pelliot@aip.acp.org>

AMERICAN INSTITUTE OF PHYSICS

INTER-OFFICE MEMORANDUM

APR 12 1991

To: All Employees of AIP, AAPM, ASA and AVS

From: T.C. Braun TCB

Date: 12 April 1991

Re: Medical Benefit Plan Changes Effective May 1, 1991

In January, you received a memo detailing our efforts in reviewing our entire health insurance program. AIP received a significant increase (over 100%) from Equicor/CIGNA effective January 1, 1991. This would represent an increase in cost of roughly $500,000 from 1990 to 1991. Had we accepted the increase without considering plan modifications, our medical benefit costs for 1991 would have soared to almost $2,000,000. Therefore we had to make some difficult decisions.

In the past AIP has absorbed increases while continuing to provide the highest quality of benefits. We are pleased that we can continue to offer one of the most comprehensive programs available. However, to partially offset the rate increase we have had to review our current benefits package and make certain practical changes. For example, we had to change our long standing policy and ask our employees to contribute part (up to 20%) of the cost of individual coverage. The following is a summary of the benefit and contribution changes that will go into effect on May 1, 1991.

CIGNA Medical Coverage

- The current calendar year deductible of $200/individual and $400/family will not change. In addition, the maximum out-of-pocket expense of $800 per calendar year (20% of $3000 plus the $200 deductible) will also remain unchanged.

- Our Blue Cross hospitalization coverage will be replaced by the CIGNA plan effective May 1, 1991. This means that both hospital and major medical charges will now be covered by CIGNA on a comprehensive basis. Therefore, the deductible and out-of-pocket maximum listed above will now apply to combined hospital charges and major medical charges. CIGNA will issue a hospital ID card to replace your Blue Cross card. Remember to carry the new card at all times for hospital use.

- CIGNA requires pre-certification for all hospital admissions except in emergency situations. Failure to contact CIGNA prior to hospitalization (the 24-hour toll free number will be on your ID card) will result in a penalty of $500.

- Outpatient mental health charges will be reimbursed at 50% of the first $60 of charges for a maximum payment of $30/visit. There will be a $1500 calendar year maximum benefit.

S 000983

- The PCS drug card will now be supplied by CIGNA and will be accepted at all PCS participating pharmacies. The co-payment for generic drugs will remain at $1/prescription. The co-payment for brand name drugs will increase from $3 to $5/prescription. In addition, we are enhancing the prescription drug plan to include a mail-order service for maintenance drugs (i.e., prescriptions which are filled on an ongoing basis). There will be no charge for mail-order prescriptions. New PCS cards will be issued shortly and will replace the current PCS cards. The PCS and mail-order benefit are for employees only. Prescription charges for dependents will be covered as before under the major medical plan.

Vision Care

A. Frames & Lenses:

- A new vision services program, provided free of charge to you and your dependents, will be introduced on May 1, 1991 to replace the existing vision plan. This new program is administered by Outlook Vision Services, Inc. and provides participants with eyewear benefits at significant discounts. Outlook Vision Services contracts with well known vision care and specialty eye care centers throughout the country (e.g., Cohen, Sterling Optical). These providers agree to sell their vision care supplies (lenses and frames) at the published wholesale price plus a nominal processing fee. This means that you will receive your eyewear at discounts of up to 60% off the retail price. You may select the eyewear of your choice with no limits to the number of items or visits per year. Contact lenses are provided at substantial discounts through a mail-order program. You can even purchase non-prescription sunglasses at a discount of up to 20%.

  With the Outlook Plan, there are no deductibles or claim forms to be filed. A membership card and instructions for using this new plan will be sent to you shortly.

B. Annual Eye Exam:

- Eye exams will still be covered by CIGNA up to a maximum of $30/year under the major medical portion of the plan and will be subject to the deductible. The eye exam benefit will only be available to those employees covered under the CIGNA medical plan. If you are covered by an HMO, you will receive the eye exam provided by your HMO. However, regardless of what medical plan you choose, everyone will receive the Outlook Vision Services plan described above.

Life and Dental Benefits

- Life insurance and dental coverage will remain unchanged for this policy year.

Employee Contributions

- As mentioned above, we are instituting a new contribution schedule for individual as well as family coverage. AIP has determined that everyone electing to participate in the medical and/or dental plans will pay a "fair share" of the Institute's monthly cost. Contributions will be based on individual salary levels according to the following formula:

  For every $1,000 of annual base salary, you will contribute one-half percent (0.005) of the cost of the medical and dental coverage for which you are enrolled up to a maximum of 20% of the premium. Several examples of the new "fair share" formula are listed below. Also attached are a worksheet which you may use to calculate your personal contributions and a bi-weekly premium chart for all of the health plans. Please note that contributions are deducted on a pre-tax basis (i.e., from your gross income before taxes are deducted).

Examples of Contributions

- (1) If your annual salary is $20,000 and if you are enrolled in the CIGNA medical and traditional dental plans, your fair share equals:

  $20,000 divided by $1000 = 20; multiply 20 by 0.005 = 0.10

  Individual coverage: 0.10 X $94.94 = $9.49 per bi-weekly paycheck

  Family coverage: 0.10 X $234.95 = $23.49 per bi-weekly paycheck

  (2) If your annual salary is $34,400 and you are enrolled in Oxford HMO, your fair share equals:

  $34,400 divided by $1000 = 34.4; multiply 34.4 by 0.005 = 0.172

  Individual coverage: 0.172 X $74.66 = $12.84 per bi-weekly paycheck

  Family coverage: 0.172 X $197.42 = $33.96 per bi-weekly paycheck

  (3) If your annual salary is $40,000 or more and if you are enrolled in the CIGNA medical and dental care plans, your fair share equals:

  $40,000 divided by $1000 = 40; multiply 40 by 0.005 = 0.20

  Individual coverage: 0.20 X $90.80 = $18.16 per bi-weekly paycheck

  Family coverage: 0.20 X $225.64 = $45.13 per bi-weekly paycheck

Please refer to the attached worksheet in order to compute your own contribution.

A special "off-cycle" HMO open enrollment will be held during the last two weeks of April. During this open enrollment you will be able to switch into one of our HMOs if you wish. If you are planning to change your medical benefits or decline the benefits, there is a Change of Benefits form which must be filled out. This form and the appropriate enrollment forms can be obtained by contacting Janet Pultro ext. 496 (Woodbury) or Paula Melnick ext. 546 (New York).

In conclusion, because of the numerous changes that will be going into effect on May 1, we have scheduled employee meetings to further explain the plan revisions. AIP wants you to be able to make an informed decision regarding which plans best meet your needs. The meetings will be held as follows:

LONG ISLAND: **Thursday, 18 April and Monday, 22 April 1991**

NEW YORK: **Wednesday, 17 April 1991**

WASHINGTON: **Tuesday, 23 April 1991**

If you plan to attend one of these meetings, please complete the enclosed BENEFITS MEETING form and return it to Personnel IMMEDIATELY.

BI-WEEKLY PREMIUM CHART

CIGNA Medical & PCS Combined
Individual Coverage: $ 84.42
Family Coverage: $209.46

CIGNA Traditional Dental

Individual Coverage: $ 10.52
Family Coverage: $ 25.49

CIGNA Dental Care *[Network of Participating Dentists]*

Individual Coverage: $ 6.38
Family Coverage: $ 16.18

Choice Care HMO

Individual Coverage: $ 65.34
Family Coverage: $171.94

Oxford HMO

Individual Coverage: $ 74.66
Family Coverage: $197.42

HIP/HMO

Individual Coverage: $ 62.73
Family Coverage: $163.11

HIP Choice HMO

Individual Coverage: $ 71.27
Family Coverage: $185.30

U.S. Healthcare HMO

Individual Coverage: $ 59.22
Family Coverage: $144.39

AMERICAN INSTITUTE OF PHYSICS

Calculation Worksheet

In order to determine your bi-weekly contribution to the medical and/or dental plan in which you are enrolled, please follow the following formula:

Step 1

Compute the portion of premium you must contribute. (Capped at 0.20).

Step 1

$_____ divided by $1,000 = _____
(Annual Salary)

_____ multiplied by 0.005 = _____ (A).

If A is greater than 0.20, enter 0.20.

Step 2

Use the attached Bi-weekly Premium Chart to compute the Total Bi-weekly Premium for the medical/dental plans in which you are enrolled.

For the Medical Premium, fill in the Bi-weekly Medical Premium from the attached chart for either the CIGNA Medical & PCS Combination Plan or your HMO.

For the Dental Premium, fill in the Bi-weekly Dental Premium from the attached chart for either the traditional dental or the CIGNA Dental Care Plan.

Step 2

Medical Premium (B) - *Insert applicable individual or family premium.*

☐ Individual Coverage $_____
or
☐ Family Coverage $_____

Dental Premium (C) - *Insert applicable individual or family premium.*

☐ Individual Coverage $_____
or
☐ Family Coverage $_____

Step 3

Add your Medical (B) and Dental (C) Premiums (From Step 2).

Step 3

Medical Premium (B) $_____
Plus
Dental Premium (C) $_____

Total $_____ (D)

Step 4

Complete the following calculation to determine your Bi-weekly Contribution.

Step 4

Multiply Total Preimum (D) by your portion (A), see Step 1, to find your Bi-weekly Contribution

_____ X _____ = _____
(D) (A) Bi-Weekly Contribution

S 000988

AMERICAN INSTITUTE OF PHYSICS

INTER-OFFICE MEMORANDUM

November 20, 1996

TO: AIP and AAPM Employees

FROM: Theresa C. Braun

SUBJECT: 1997 Bi-Weekly Premium for United Healthcare (MetraHealth)

We have recently received additional information from United Healthcare regarding our benefit rates for 1997. We are pleased to announced that the rates will remain the same as in 1996.

Please disregard the 1997 Bi-Weekly Premium Chart that was attached to my memo of November 7, 1996. Attached is a 1997 Bi-Weekly Premium Chart with the revised rate for United Healthcare and a Benefit Cost Worksheet.

1997 Bi-Weekly Premium Chart
(Maryland)

Plan: **United Healthcare**	Bi-Weekly Rate
Employee	$127.21
Employee + one	$251.82
Family	$353.15

Plan: **U.S. HealthCare**	Bi-Weekly Rate
Employee	$74.40
Employee + one	$144.81
Family	$214.13

Plan: **George Washington**	Bi-Weekly Rate
Employee	$70.08
Employee + one	$145.43
Family	$199.81

Plan: **Delta Dental**	Bi-Weekly Rate
Employee	$12.97
Employee + one	$25.71
Family	$40.62

These are AIP's bi-weekly premium rates (vision rates are included in the medical premium). Please use the Calculation Worksheet to determine what your actual bi-weekly cost will be.

g:benrates.md/mku

American Institute of Physics

Benefits Cost Worksheet

Use this worksheet to determine your bi-weekly payroll deduction for medical and/or dental coverage under AIP's health benefits plans.

Step 1

Find your percentage (maximum = 20%)	Divide your annual salary by $1,000 salary _____ ÷ $1,000 = _____ [A] Multiply [A] ____ x 0.005 = _____ [B] Note: if [B] is greater than 0.20, enter 0.20

Step 2

Identify the medical and dental costs for the coverage you want	Fill in the bi-weekly premium for the type of medical coverage you want from the chart on the reverse side (which plan? individual, individual + 1 or family?): $_____ [C] Fill in the bi-weekly dental premium: $_____ [D]

Step 3

Calculate total bi-weekly health benefits premium	Medical premium [C] _____ *plus* Dental premium [D] _____ Total premium [E] _____

Step 4

Find your actual bi-weekly benefits cost	Multiply the total premium [E] by your percentage [B] from step 1 -- to find your actual bi-weekly payroll deduction. _____ X _____ = _____ [E] [B] your bi-weekly cost

1998 Bi-Weekly Premium Chart
(Maryland)

These are AIP's bi-weekly premium rates (VISION RATES ARE INCLUDED IN THE MEDICAL PREMIUM).

Plan: **United Healthcare**	Bi-Weekly Rate
Employee	$140.28
Employee + one	$277.82
Family	$389.46

Plan: **U.S. HealthCare**	Bi-Weekly Rate
Employee	$82.52
Employee + one	$154.92
Family	$233.88

Plan: **George Washington**	Bi-Weekly Rate
Employee	$75.31
Employee + one	$156.37
Family	$214.74

Plan: **MetLife Dental**	Bi-Weekly Rate
Employee	$12.69
Employee + one	$24.39
Family	$35.91

Please use the Calculation Worksheet to determine what your actual bi-weekly cost will be.

AMERICAN INSTITUTE OF PHYSICS

AIP INTER-OFFICE MEMORANDUM

October 27, 1998

TO: All Maryland Employees of AIP and AAPM

FROM: Theresa C. Braun TCB

SUBJECT: Open Enrollment for Health and Flexible Spending Programs

---

The Institute will have Open Enrollment for the health and Flexible Spending Programs from October 28, until December 1, 1998. Unless a qualifying event occurs, an employee wishing to change their present coverage may do so only during the open enrollment period. All changes will become effective **January 1, 1999.**

In 1999, we will offer hospitalization and major medical coverage through United Healthcare. We also offer the following Health Maintenance Organization Plans: George Washington University Health Plan (GWU), and Aetna/U.S. Healthcare.

We urge all employees to attend the Employee's Benefit Meeting and the Open Enrollment Meeting for more information and details—See attached yellow sign up sheet.

There are many changes in our benefits programs that will be effective with our new plan year. Some of these changes include the following:

- The United Healthcare plan has been converted to a Choice Plus Plan and has a rate increase of 7.5%. There are important changes to the United Healthcare Plan such as a $20 copay for mail order Rx and a $15 copay for doctor visits-- **please attend the Employee's Benefit Meeting on November 6, for more details.**

- Since NYLCare has merged with Aetna/U.S. Healthcare, AIP will no longer offer NYLCare. Employees currently enrolled with NYLCare **must** choose another medical carrier for 1999.

- The rates for Aetna/U.S. Healthcare have increased by 9.4%.

- There will be no rate increase for MetLife Dental.

- The rates for George Washington University Health Plan have decreased by 2% for individual and family coverages while decreasing 8.3% for employee + one coverage.

1999 Bi-Weekly Premium Chart

Plan: **United Healthcare**	Bi-Weekly Rate
Employee	$150.15
Employee + one	$297.71
Family	$416.96

Plan: **Aetna/U.S. HealthCare**	Bi-Weekly Rate
Employee	$89.61
Employee + one	$167.94
Family	$253.83

Plan: **George Washington (MD ONLY)**	Bi-Weekly Rate
Employee	$73.48
Employee + one	$143.13
Family	$209.81

Plan: **HIP (NY ONLY)**	Bi-Weekly Rate
Employee	$89.23
Employee + one	$166.78
Family	$247.12

Plan: **MetLife Dental**	Bi-Weekly Rate
Employee	$12.69
Employee + one	$24.39
Family	$35.91

These are AIP'S bi-weekly premium rates (vision rates are included in the medical premium). Please use the Calculation Worksheet to determine what your actual bi-weekly cost will be.

American Institute of Physics

Benefits Cost Worksheet

Use this worksheet to determine your bi-weekly payroll deduction for medical and/or dental coverage under AIP'S health benefits plans.

Step 1

Find your percentage (maximum = 20%)	Divide your annual salary by $1,000 salary _____ ÷ $1,000 = _____ [A] Multiply [A] ____ x 0.005 = _____ [B] Note: if [B] is greater than 0.20, enter 0.20

Step 2

Identify the medical and dental costs for the coverage you want	Fill in the bi-weekly premium for the type of medical coverage you want from the chart on the reverse side (which plan? individual, individual + 1 or family?): $_____ [C] Fill in the bi-weekly dental premium: $_____ [D]

Step 3

Calculate total bi-weekly health benefits premium	Medical premium [C] _____ *plus* Dental premium [D] _____ Total premium [E] _____

Step 4

Find your actual bi-weekly benefits cost	Multiply the total premium [E] by your percentage [B] from step 1 -- to find your actual bi-weekly payroll deduction. _____ X _____ = _____ [E] [B] your bi-weekly cost

AMERICAN INSTITUTE OF PHYSICS
Employee Performance Appraisal

Employee's Name JEFFREY SCHMIDT Division PHYSICS TODAY
Employee's Job Title ASSOCIATE EDITOR Evaluator GLORIA LUBKIN
Date Employed 3/17/81 Date Effective 3/16/88 Date Due 2/19/88
Period Appraised: From: 2/20/87 To: 2/19/88

Objective of Appraisal

The objective of the performance appraisal is to:
A) give feedback to the employee as to how well he/she is performing;
B) provide an incentive to improve through recognition; and
C) offer an objective basis for determining the amount of periodic wage increases.

INSTRUCTIONS

To the Evaluator

1. Evaluate the employee's work performance without regard to race, color, religion, sex, age, national origin, or handicap.
2. Review performance for the entire review period; do not base your judgment on recent events or isolated incidents only.
3. Consider one factor at a time; judge each factor independently.
4. Make your appraisal in terms of actual performance and on the basis of facts and records so that it can be discussed with and explained to the employee. Utmost care and thought should be given to your answers because they govern the individual's success with the Institute.
5. Prepare the appraisal so that in later discussions with the employee you can help him or her to understand: how well he or she is doing in the position; where his or her strengths lie, and how they can be used to the best advantage for the individual and the Institute; what weaknesses exist, and how they can be corrected through training or counseling.
6. Avoid the tendency to overrate the employee's performance as exceptional when he or she actually performs above standard. Remember that the fully qualified employee is expected to perform at least satisfactorily.
7. Appraise performance and not personality. If a factor is concerned with the employee's personality, it should be only as it relates to the person's ability to do the assigned work.
8. If performance in any rating factor is below standard or inadequate, tasks or goals must be specified to improve performance.
9. Space has been reserved at the end of this appraisal for overall comments by the evaluator concerning employee's strengths, weaknesses, accomplishments, potential, etc. This section must be completed by the evaluator.

To the Employee

Please read the appraisal thoroughly and discuss the contents of the appraisal with your immediate supervisor. You are encouraged to write your comments in the space provided on page 4 prior to signing the appraisal. Please remember that the objective of the appraisal is to provide you with a better understanding of how your supervisor sees your on-the-job performance in relation to the standards set for the position.

Your signature at the end of this appraisal does not mean that you agree with everything that is stated on the form, only that you have read the completed form.

S 000996

EXPLANATION OF EMPLOYEE RATING FACTORS

1. QUALITY OF WORK
How good is the output produced? Consider service provided, complaints received, mistakes made, etc.

2. QUANTITY OF WORK
How much of a product or service does the employee produce? Consider volume of output, turnaround time, etc.

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3. (a) ATTENDANCE
How dependable is employee? When possible, does employee properly report absences (sick/vacation) in advance? Is attendance record excellent?

3. (b) PUNCTUALITY
Does employee arrive at work on time? Does employee adhere to policy regarding breaks and lunch periods?

4. INITIATIVE
Consider the amount of supervision needed by employee, willingness to volunteer for assignments, willingness to undertake self-development activities, ability to make correct decisions in the absence of the supervisor, etc. To what extent does employee originate useful ideas, make feasible suggestions for improved methods, and seek expanded assignment?

5. RELATIONSHIP WITH CO-WORKERS
How well does employee get along with others? Consider employee's relationships with co-workers and supervisor, quality of interactions with the public, etc. Does he/she demonstrate willingness to assist co-workers and superiors, both in own and other areas?

6. USE OF WORK TIME
Does employee make efficient use of working time? Does employee organize work effectively, eliminate wasted effort, etc.

7. ADAPTABILITY
Consider flexibility in accepting new procedures, conditions, priorities, etc. Does employee work well under pressure?

8. JUDGMENT
How well does employee make correct decisions, organize their workload, and anticipate potential problems? Consider employee's ability to distinguish the important from the unimportant, choose worthwhile courses of action, and understands priorities.

EMPLOYEE PERFORMANCE SHEET

RATING FACTORS | **RATINGS**

1. QUALITY OF WORK – The extent to which the employee actually completes job assignments.

6	12	18	24	30
Almost always makes errors, has very low accuracy	Quite often makes errors	Makes errors but equals job standards	Makes few errors, has high accuracy	Almost never makes errors, has very high accuracy

Comments/Goals: Authors often praise Jeff's editing. He is thorough and produces excellent articles. — 27

2. QUANTITY OF WORK – The extent to which the employee produces a volume of work consistent with established standards for the job.

6	12	18	24	30
Almost never meets standards	Quite often does not meet standards	Volume of work is satisfactory, equals job standards	Quite often produces more than required	Almost always exceeds standards, exceptionally productive

Comments/Goals: Jeff is still very slow. Occasionally he should edit more than two articles/month. — 18

3. (a) ATTENDANCE – The extent to which the employee adheres to work schedule.

1	2	3	4	5
Excessively absent	Frequently absent	Occasionally absent	Infrequently absent	Almost never absent

Comments/Goals: — 5

3. (b) PUNCTUALITY – The extent to which the employee adheres to work schedule.

1	2	3	4	5
Excessively late	Frequently late	Occasionally late	Infrequently late	Almost never late

Comments/Goals: Jeff comes to work late & stays late. He should keep us informed of his presence or absence. — 2

4. INITIATIVE – The extent to which the employee exercises self-reliance, planning, ingenuity.

2	4	6	8	10
Requires constant supervision	Frequently requires supervision	Requires average supervision	Works independently with limited supervision	Consistent self-starter, needs minimal supervision

Comments/Goals: Excellent initiative editing articles. Little initiative soliciting articles & suggesting stories — 9

5. RELATIONSHIP WITH CO-WORKERS – The extent to which the employee establishes and maintains good relations with co-workers.

2	4	6	8	10
Does not get along well with co-workers. Definitely hinders effectiveness	Has difficulty in getting along with co-workers	Gets along with co-workers adequately average skill in human relations	Above average skills in human relations	Excellent skills in human relations,

Comments/Goals: — 6

6. USE OF WORK TIME – The extent to which the employee uses time to effectively and efficiently accomplish job tasks.

2	4	6	8	10
Quite often wastes time	Too frequently wastes time	Makes adequate use of time	Utilizes time wisely	Exceptionally effective in use of time

Comments/Goals: Jeff takes it too long in editing an article. — 6

7. ADAPTABILITY – The extent to which the employee is flexibile, learns new skills, and functions under pressure.

2	4	6	8	10
Inadequate	Partially meets standards	Meets standards	Exceeds standards	Outstanding

Comments/Goals: Jeff should strive to be more flexible when asked to do new kinds of tasks. — 6

8. JUDGMENT – The extent to which the employee questions inconsistencies, understands priorities, anticipates and/or solves problems.

2	4	6	8	10
Inadequate	Partially meets standards	Meets standards	Exceeds standards	Outstanding

Comments/Goals: Jeff does well at anticipating problems with the articles & the authors. — 8

TOTAL OF PERFORMANCE RATINGS — 87

OVERALL EVALUATION

This employee's work:

☐ Does not meet standards (24–42)	☐ Partially meets standards (43–67)	☒ Meets standards (68–90)	☐ Exceeds standards (91–105)	☐ Consistently exceeds standards (106–120)

EVALUATOR'S COMMENTS (Must be filled out)

Jeff is an outstanding editor of articles & can be relied on to edit two articles each month in an expert manner.

EVALUATOR'S SIGNATURE _____ DATE _____

REVIEWED BY _____ DATE _____

EMPLOYEE'S RESPONSE

EMPLOYEE'S SIGNATURE _____ DATE _____

DISCUSSED WITH EMPLOYEE BY _____ DATE _____

DIVISION MANAGER _____ DATE _____

BRANCH DIRECTOR/OFFICER _____ DATE _____

FOR PERSONNEL USE ONLY

Comments:

S 000999

Reviewed by _____ DATE _____

2 January 1990

C O N F I D E N T I A L

TO: Jeffrey Schmidt
Physics Today

FROM: Personnel Division

SUBJECT: Exempt Salary Structure Implementation

As you know, AIP has been reviewing all salaries, grades and ranges for most of 1989. We spent from February through August preparing the Non-Exempt Salary Structure. Overlapping in time, we worked on the Exempt jobs from June through November. The new Exempt Salary Structure goes into effect 1 September 1989.

Your position, Associate Editor I, will be in the new Exempt Grade 5, which has a range of 31,100 - 39,500 - 47,900.

We are happy to inform you that you will receive an Equity Adjustment of $ 1,600, resulting in a new annual salary (as of 9/1/89) of $ 42,300. Your next regular salary review date remains 1 March 1990.

The salary change described in this letter will be reflected in your 11 January 1990 paycheck. (The retroactive portion of your adjustment will be paid in a separate check on the same date.)

AMERICAN INSTITUTE OF PHYSICS

Payroll Authorization Form B - Personnel Committee Action Only

TO: PAYROLL DATE: 1/12/90

RE: Jeffrey Schmidt (Employee's Name) DIVISION: Phys. Tod.

Payroll Account: _____

[XX] Salary Change [X] ~~Title~~ Grade Change [ ] Transfer

Equity Adjustment Exempt

SALARY CHANGE

Assoc. Ed. I 9/1/89

Position Title Grade Range Effective Date

$40,700 $1,600 $42,300

Previous Salary Amount of Increase New Salary Percentage

_____ Quartile _____ Overall Rating

Gloria Lubkin Jean Beyer

Recommending Party Authorized Approval Personnel

~~TITLE~~ Grade CHANGE

From _____ To _____ Effective Date 9/1/89

5 31,100-39,500-47,900

New Grade New Range

Gloria Lubkin Jean Beyer

Division Head Personnel

TRANSFER (Division or Charges)

From _____ To _____ Effective Date _____

_____ _____ _____

Division Head Division Head Personnel

S 001001 Rev. 3/89